THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

APRIL, 1897.

## NOTES ON THE "ROORKHEE DISEASE."

BY VETERINARY-CAPTAIN HENRY T. W. MANN, A.V.D., MEERUT, INDIA.

THE following extracts, from reports furnished by me, on a disease affecting horses—which occurs locally at Roorkhee, and is popularly known under the above name—may be of interest to readers of the VETERINARY JOURNAL in England.

At the end of April, 1896, in accordance with official instructions, I proceeded to Roorkhee in order to make an investigation into the disease. By making careful enquiries in every available quarter and source, the following data were elicited.

### *History of the Disease.*

According to the statements of natives, the disease has existed in a sporadic or enzootic form in the Roorkhee district for the past twenty-five years; from European evidence it is known to have occurred during the past twelve years. At the date of my investigation, it was only during the two preceding years that any record of the cases had been kept; this record only comprised such animals as had been attacked within the cantonment and the civil lines.

In 1895 the number of cases was greater than in any one of the previous ten years; in that year, too, the proportion of recoveries was also more favourable.

### *Animals Liable to the Disease.*

Horses seem to be the only animals subject to its attack; no analogous affection appears to have occurred in mules, donkeys, camels, cattle, sheep, goats, dogs, or fowls.

In horses—entires, geldings, and mares are, apparently, equally susceptible.

With regard to caste—country-breds, Australians, Arabs, and English have all been affected.

### *Nature of the Disease.*

Acute and sudden in attack; rapid in its course; usually fatal in termination. About five hours was the average duration; in some cases, death had occurred within three-quarters-of-an-hour after the first symptoms showed themselves; in others, death took place up to twenty-two hours after.

Of the 29 cases recorded in the previous twenty-three months, 24 died and five recovered.

### *The "Condition" of Animals Attacked.*

The physical "condition" appears to have had no bearing, as to liability, either one way or the other: the animals were in various and in all states of "condition." The disease also attacked, indifferently, horses in hard or regular work, and others merely doing exercise.

### *Ages of Animals Attacked.*

The animals which suffered were of ages ranging from 30 months to 22 years. Out of the 29 cases, 22 horses and ponies were "aged"; some were very old: I do not, however, consider that this shows any predisposition in "aged" animals to contract the disease: it must be taken into consideration that the majority of owners—non-commissioned officers and subordinates in other branches—were more likely to possess "aged" animals (as costing less) than younger and fresher ones.

### *Symptoms of the Disease.*

In some cases it was observed that the feed given prior to the attack was not finished; this was not so in all: in others a listless, dejected demeanour was noticed. The first marked and *invariable* symptom is a copious flow of saliva: this may or may not be accompanied by champing of the jaws. Later there is a discharge of ropy mucus from the nostrils; occasionally this is tinged with blood. Early in the case the pulse, temperature, and respiration are normal, and the animal has full locomotory power: shortly afterwards violent contractions of the cervical muscles occur, at intervals of about ten minutes between the paroxysms, accompanied by a grunting sound: at this stage the animal frequently rolls. Within an hour paralysis of the loins occurs, and the horse falls: the paralysis extends rapidly from the hind to the fore

extremities, and the muscles of deglutition are affected. *After* paralysis commences, a profuse perspiration begins at the flanks: defecation and micturition occur frequently, but are voluntary.

The temperature rises to 102° (seldom higher); the pulse becomes intermittent; the respiratory action laboured and stertorous. The subject is in extreme pain, and, towards dissolution, unconscious. Rigor mortis sets in quickly. The symptoms in all cases, whether acute or subacute, are similar.

In the cases which recovered one symptom was invariably absent, viz., there was no perspiration; the paralysis abated in from 8 to 12 hours.

The cure appeared to be complete; I saw two horses which had recovered, and there was no weakness of the loins detectable.

*Post-mortem appearances.*

The hearts showed signs of carditis and endo-carditis: in some cases the stomachs exhibited slight inflammation of the mucous coat; the other thoracic and abdominal organs and viscera were healthy. The blood was black in appearance, and neither coagulated completely or freely. In *all* cases the brain was found to be softened, and there was an absence of grey matter: the spinal cord throughout was softened and pallid; a quantity of colourless fluid was present beneath the meningeal membranes. It will be recognised that these lesions are analogous to those found in the human subject in cases of "cerebro-spinal-meningitis."

*Treatment.*

Various methods of treatment had been tried, but the results did not justify a conclusion that any benefit had accrued.

*Cases seen by me.*

I was so fortunate as to see two cases on the occasions of two visits, of some days' duration, which I made to Roorkhee from Meerut. Both were acute ones, each lasting less than an hour. I was enabled to watch their course throughout and to make the autopsies. I found that the cases tallied, in all respects, with the particulars detailed above, and which I had collated by enquiry from numerous owners who had lost horses.

*Opinion formed.*

By carefully sifting the evidence submitted, in the many theories advanced as to the possible cause of the disease, I based the opinions (A. B. C. D.) which follow; it is unnecessary to enumerate the *pros* and *cons* in extenso; attention will, therefore, only be invited to such remarks as I consider have special weight.

(*A.*) *Not due to toxic agents.*

The idea was prevalent that the cases owed their origin to the *malicious* introduction into the animal system of either animal, vegetable or mineral poison; or to the *accidental* presence in fodder or poisonous grasses, cereals, etc. On several occasions various organs and the ingesta had been submitted for analytical examination. Nothing was ever found in support of the above theory.

(*B.*) *Not due to the water.*

The water from wells and different sources in use was analysed, and experiments were made with it on rodents; the results were *nil* as regards the water being of a deleterious quality.

(*C.*) *Not due to a specific virus in the air.*

The view that the disease depended upon the presence of a specific virus in the air may, I think, be discarded. To a considerable extent all the horses in the station would be exposed, in an almost equal degree, to such an influence; it was noticeable, however, that but few officers (who, it must be remembered, own a far larger number of horses than subordinates) had lost animals; the majority of the sufferers were owners holding inferior social positions, and keeping but one horse each.

Again, from the dates of recorded cases, the disease did not appear to be more prevalent in any one month of a year than in others; it is reasonable to assume that some variation —either an increase or diminution in cases—would have occurred in the different seasons of the year had the above view been a correct one.

(*D.*) *That it was non-contagious or infectious.*

A cursory examination of evidence would have pronounced this to be a bold and dubitable assertion; firstly, because in

four double-stalled stables eight cases occurred; secondly, during the last 12 years many cases have occurred on the dâk bungalow camping-ground.

The animals in the former instances were exposed to similar conditions as regards the grass supply; "contagion" or "infection" played no part, in my opinion. It was the custom of subordinates keeping a pony each to "go shares" in our grass-cutter for two animals; this man had to bring in daily a supply of grass for each of his masters. It follows, therefore, that if a half of the grass induced the disease in the one animal the remaining portion (for the whole would be collected from one locality) would be likely to cause a like effect in the other. This procedure obtained in the cases referred to.

With regard to the camping-ground, long looked upon as a dangerous spot, I need only adduce the following facts:—Firstly, the ground was once ploughed up and closed for two years, but cases occurred as frequently as ever in places further afield; secondly, a native gharry-owner has for many years kept a stud of about 30 horses there, and, although a large number of cases have occurred within a few yards of these animals, this owner has never lost one. I attribute the immunity to the supervision exercised as to the localities where his grass was obtained from. (I alluded in a previous paragraph to the few losses officers had sustained. This may be accounted for by the greater care taken by their grass-cutters than by those of subordinates to procure grass of a good quality). Thirdly, I am convinced that in many cases the *inception* of the disease takes place in outlying districts of a swampy character, and that it developes at a later period when animals are halting at the camping-ground; for I have known horses march in, and die on the day of arrival. It is very improbable, indeed, that the period of incubation of such a disease is so short that a horse may consume its morning feed of grass, and die within a few hours after. Fourthly, the camping-ground is the spot where most cases are likely to occur. Nearly all animals from surrounding districts halt there, often for long periods; moreover, the ground is close to the native bazaar, and it is from here that servants frequently buy the grass for their masters' horses. The grass for sale in the bazaar is obtained by the cutters from the places easiest of access, and where it grows most abundantly. This applies also with regard to subordinates' grass-cutters, who, as I have stated, sometimes do double work.

Of course the places meeting the above requirements are

low-lying, marshy spots, frequently emargined with decayed *débris*.

*Preventive Measures Recommended.*

Having examined all the varieties of forage and fodder in use, and inspected the different localities from which grass was obtained, I recommended stringent precautions should be taken that cutters only got grass and bedding from high ground; that the edges of "jheels" (swamps), marshy places, and the banks of the river should be avoided.

Steps were taken to impress this advice on the residents, by the civil and military authorities, and they were warned against certain spots which I specified as suspicious.

*Opinion as to the Source of the Disease.*

The foregoing remarks will make it patent that I considered the grass from the low-lying tracts of land as the source of the disease: the results after the adoption of the precautionary measures here, I may fairly say, justified this conclusion.

When my investigation was drawing to an end early in May, 1896, I was ordered away by telegram for service in the Soudan: I did not return to Meerut until February of this year, and then made further inquiries at Roorkhee as to events which had occurred during my absence of nine months. I found that only one case had happened in 1896 after my investigation: this was an officer's pony which died in August. The owner had reason to believe that a servant had, contrary to orders, occasionally purchased grass for this animal in the bazaar.

Two other cases occurred in January last at the camping ground: both horses were the property of non-residents and had, for some time, been travelling in the neighbouring districts.

One animal was attacked, and died on the morning of halting at Roorkhee: the other one, which arrived three weeks later, died the second day after its reaching the camping ground.

The probability is that these horses contracted the disease through the consumption of grass in the marshy districts through which they had travelled.

*Sanitary Precautions.*

I may mention briefly that attention for the past two years had been paid to the destruction of carcasses by burning, the

digging up, etc., of stalls or places where horses had died, and the necessary precautions in other respects about the destruction of litter, gear, &c.

### *Examination of the Blood.*

I only had two opportunities of examining the blood of cases under the microscope. On the first occasion the power available was insufficient: on the second, innumerable filaria were demonstrated. In appearance they resembled somewhat closely the parasites found in "Surra." In their habits there was the following difference. The "Surra" parasites attack and denude the red corpuscles of their contents: those of this disease appeared to me to feed on the liquor sanguinis itself, thereby becoming shortened and swollen in outline.

My theory is, that through this means the blood becomes so very viscid as to materially retard its circulation in the smaller vessels, and ultimately to preclude its passage entirely through the capillaries. Such a result in the brain and spinal cord would account for the paralysis, and also for the suddenness in which this occurs.

The above is, of course, pure supposition on my part; only prolonged investigation in this particular phase could prove or disprove such a theory, but I think it is possibly a correct one.

---

## THE TREATMENT OF TETANUS IN THE HORSE WITH THE AID OF BEHRING'S ANTITOXIN.

(CONTRIBUTED TO THE *Deutsche Thierärztliche Wochenschrift* BY VET.-SURGEON CASPER.)

As a therapeutic agent tetanus-serum was first administered to the horse experimentally in the Berlin Veterinary College in September, 1892. The animal experimented on had shown distinct indications of tetanus on the 19th of that month, and on the same day there had been administered to it, by means of a special infusion apparatus, 400 cubic centimetres, on the next day 300, and on the third day again 300 ccm.—altogether, therefore, 1 litre—of the serum subcutaneously. Up to the 21st September there was really nothing to register except a cessation of the morbid processes, but from that day onwards the symptoms began to disappear at so rapid a rate that on the 27th the horse could be pronounced cured. The first effect of the injection had been an increase of temperature, which before treatment stood at 37°·2 Cent., rose till it

reached 38°·5 the same evening, and 38°·3 the following morning, and 39° the following evening, and then returned (on the 21st) to the normal.

For us, then (Behring and myself), the possibility of curing tetanus in the horse by means of curative serum was by this experiment at once demonstrated, but we emphasized at the time the importance of applying the treatment the very moment that the diagnosis was clearly established, and the necessity of injecting 1000 cubic centimetres of blood, or serum of equal efficiency. The serum administered by us at that time had a value of 1 : 10 millions. So long, however, as it was not possible to raise to a higher point the immunity of the animals supplying the blood, and seeing that from the one highly immunised horse, serum could not be obtained in sufficient quantity, the hope of any extension of the successful treatment of tetanus in horses had to be given up. Experiments continued to be made, but the results were not satisfactory. I believe, however, that not nearly the proper quantity of serum was injected. Immediately after this came the excitement about diphtheria-serum, and tetanus-serum could not be pushed forward as it deserved. Great credit is due to Dr. Knorr, of Marburg, for his endeavours in this direction, as also to M. Hartenstein. The latter took from a horse suffering severely from tetanus a quantity of blood, diluted it with water in the proportion of 5 : 100, and injected some of this (2·0 ccm.) into a colt that had just been attacked by tetanus. The colt broke out into a violent sweat, and at the end of 24 hours was quite cured. M. Hartenstein treated another case shortly after with the same good results. The whole thing sounds like a fairy-tale. But what, to me, is quite inexplicable is the rapidity of the cure : how a case of tetanus could be completely cured in 24 hours seems very wonderful.

This was the position of affairs when, through the exertions of Behring and Knorr, the immunising of the larger animals had so far succeeded that renewed attempts at curing, with fair prospect of success, could be taken in hand. In June of this year (1896), a horse was attacked, quite unmistakably, with tetanus, in this town (Höchst-on-the-Maine). As there was an abundance of the best serum at hand I applied 250 cubic centimetres intravenously. I chose intravenous injection on the ground that the antitoxin could thus develop its efficacy most rapidly ; besides I knew, from numerous former experiments, that I might with impunity introduce this quantity of fluid into the vascular system of the horse. The

morbid condition remained the same for some 24 hours and then the symptoms slowly receded, until at the end of about ten days the horse could be regarded as cured. In confirmation of the diagnosis I may add that Dr. Knorr, in the blood-sample taken from the animal immediately before the therapeutic attempt, had demonstrated the presence of tetanus poison. The only perceptible result of the intravenous injection was an increase of temperature from 37°·8 to 38°·9.

On the basis of this and other experiments performed with favourable results, I invited my professional colleagues to report to me cases of tetanus occurring in their districts, so as to enable me to test further my mode of treatment. The response was most hearty, and I select the following cases as of special interest to my readers. (1) Heavy, powerful cart-horse, 12 years old, said to have shown for two days stiffness of gait and difficulty in taking food. Head and neck somewhat stretched forward, tail held horizontally, hind-legs spread out, slight trismus, difficulty in swallowing food and water. Breathing 44, pulse 48, temperature 39° Cent. (102°Fahr.) Rattling noises in the larynx and trachea. By means of a specially constructed injection-apparatus the dose prescribed by Behring and Knorr, namely, 5 grammes of No. 1 tetanus antitoxin dissolved in 45 cubic centimetres of sterilised water, was at once injected into the jugular vein. On the following day the horse appeared brighter, the muscles less rigid, the hind-legs less spread out, trismus the same, rattling noises not so loud, breathing 36, pulse 44, temperature 38° (100°Fahr.) On the third day the movements were freer, the trismus somewhat less; patient was said to have lain down but not to have been able to rise again without assistance. Improvement then proceeded slowly; on the fifth the horse could rise without help, on the eleventh the trismus had disappeared entirely, and thirteen days after the injection the patient could be pronounced entirely cured and fit for work.

(2) Heavy Danish cart-horse had not been eating freely; was at work yesterday (6th October, 1896), but had been very stiff. The animal was housed in a low-roofed, close, very warm stable; had been rubbed with oil of turpentine by its owner, and then covered with several thick rugs, "in order," said the owner, "that the hard muscles might become soft again" (!); it was therefore covered with sweat and greatly depressed. Tail was horizontal, hind legs spread out wide, animal unable to move to the side, muscles as hard as wood, scarcely possible to insert three fingers between the

rows of teeth, nostrils distended, breathing laboured, feeding greatly impeded. Intravenous injection of 5 grammes antit. in 45 gr. water. Following day condition much the same. Next day feeding a little easier, trismus somewhat less; four fingers could now be introduced. In the next few days the tetanus symptoms gradually diminished, so that the animal, six days after the injection, could absorb 5 kilogr. of bruised oats as well as hay and mashes. But as the tetanus receded the weakness of the animal became more noticeable, and on the 14th October it was reported that the horse had lain down in the course of the night and could not rise again. He was found to be quite exhausted and covered with sweat, and death took place in the evening. On the following day a *post-mortem* was made, and showed that the internal organs (as is generally the case in tetanus) presented no characteristic lesions. In order to trace out the focus of infection, the hoofs were sawn up, and thereby was discovered, between the horny and the fleshy sole of one of the hind feet, a pus-focus filled with greyish-black watery pus, which, when transferred to mice, produced tetanus.

This case is in many ways instructive. By the injection of the antitoxin a manifest diminution of the tetanus-symptoms was effected; but, in spite of this, the horse died in consequence of increasing weakness. He had been from the outset in a very feeble condition, and he had, whilst clearly suffering from tetanus, been kept at work; in addition, there was the painfulness of the sore foot, which had manifestly made standing difficult. An examination of the hoofs was rendered impossible by the very weakness of the animal. To suspend him was, in the condition of the stable, unfortunately impossible; but it is by no means improbable that he might have been saved had it been possible, by means of slings, to make standing easy for him, and thus make a local treatment of the focus of infection practicable.

(3) A six-year old roan gelding had, whilst drawing a dust-cart, on 22nd October, 1896, trodden on the sharp broken end of a packing-needle and driven it into the inner sole of the left hind foot. On the 6th November, that is 15 days after the injury, the first symptoms of tetanus appeared—stiffness of the body, jerky action, &c. In addition, the nostrils were widely distended and the tension of the maxillary muscles was so great that it was scarcely possible to separate the incisors of either jaw a centimetre from one another. Strongly marked hyperæsthesia, great restlessness and partial outbreaks of sweat were visible attendant symptoms. Pulse 54,

breathing 20 per minute, internal temperature 30°·9 Cent. At 5 p.m. on 6th November an intravenous injection of tetanus-antitoxin was made, but this operation so excited the patient that it was scarcely possible to introduce the needle into the vein, and it was therefore unavoidable that a small quantity of the serum should be lost. On the morning of the 7th November the tetanic condition had become greatly intensified and the trismus especially had risen to such a height that both jaws appeared tightly pressed together and made all movement impossible. The patient received on this day a second intravenous dose of antitoxin, and this time there was none lost. From the 8th to the 10th November the tetanic state remained the same. In the region of the lumbar muscles there was indeed an unmistakable relaxation, and in addition, the patient was much more tranquil and perspired little or not at all. As feeding in the ordinary way was impossible, food was injected hourly *per anum*. On the morning of the 10th the first symptoms of pneumonia showed themselves and the patient died on the 11th November.

(4) A ten-year old brown gelding became unwell on the 17th November, with symptoms of tetanus—straddling gait, rigidity in attitude of head and body, smacking sound when the jaws were moved, all confirmed the diagnosis. Trismus was of such a nature that a 2 to 3 centimetre separation of the rows of incisors was still possible. Appetite was very keen, and eating was in no way seriously impeded. Pulse 36, breathing 10, temperature 30°.5. Patient was at once put into slings; no wound was to be found; inoculation took place on 18th November at 3 p.m. On the 20th there was slight relaxation of the muscular contraction, especially in the lumbar region. On the 23rd distinct improvement with regard to the trismus. The space between the incisors on opening the jaws was three to four centim., pulse 36, breathing 10, temperature 36°·8 (98° Fahr.). Patient ate his fodder with great eagerness. On 26th November tetanus had all but disappeared. Patient showed, at various times during the day, local outbreaks of sweat; but these, in connection with the reduced temperature of the body, were to be ascribed to general bodily weakness following on recovery from severe illness. From 28th to 30th November the outbreaks of sweat gradually declined, appetite increased, and inward temperature on the morning of the 30th had again reached the height of 38° Cent. (100° Fahr.). Patient was dismissed cured.

(5) Bay gelding, 10 years old, showed on 27th November slight tetanic symptoms. Cramp of the maxillary muscles

perceptible from a distance by the smacking noise of the jaws. Feeding as usual, and in no way impeded. Pulse 36, breathing 10, temperature 38°·5 Cent. Intravenous injection of antitoxin on 28th at 3 p.m. No wound traceable. On 29th distinctly visible improvement in tetanic symptoms; on 30th relaxation of contraction in lumbar region, general condition permanently good. On 2nd to 4th December increase of the tetanic symptoms in the muscles of neck and head; jaw movement less free; greatest distance between incisors 2 to 2½ centimetres. Feeding rather difficult, but still practicable. Same increase in tetanic condition shown by certain groups of muscles in the fore-arms, but in the lumbar region scarcely any trace of tetanus. 6th December, tetanic condition of head and neck rapidly disappearing; jaw movement again pretty free, general condition good, pulse 38, breathing 12, temperature 37° Cent. (98° Fahr.). On the eighth day local outbreaks of sweat took place, but these disappeared on the twelfth. On the 8th December patient was released from the slings, and walked about daily for half an hour. On the 10th he was dismissed cured.

In connection with this case it may be remarked that there are apparently certain tetanic affections, in which a single inoculation does not suffice for the complete and permanent paralysing of the tetanic symptoms. This case shows in the first three days after inoculation no increase of the tetanic condition. The antitoxin introduced into the system seems by its working to have simply held its own against the tetanus-poison already in the system. With the fourth day this equipoise ceases, the power of the tetanus-poison gets the upper hand again, and in consequence of this we find the increase in the tetanic symptoms in the muscles of the head and neck. We have, therefore, to ask ourselves: Is a second inoculation in certain cases of tetanus not clearly necessary? The time for performing this second inoculation is to be determined simply and solely by the condition of the patient.

(6) On 18th November, 1896, a strongly built horse showed usual symptoms of tetanus. Intravenous injection. Next day trismus more severe, so that two fingers can scarcely be introduced, and this continues for three days, during which only a small quantity of oats is eaten, then symptoms slowly recede. In ten days after injection trismus had disappeared but gait was a little stiff; complete cure in 16 to 18 days. A probable focus of infection was subsequently found in a wound in the frog of the left hind-foot. This horse also belonged to the cleaning department.

(7) A strong cart-horse had had tetanus four days. Complete trismus, great excitement, laboured and noisy breathing, feeding impossible. Intravenous injection on 20th November. Next day owner said the animal appeared easier, but on third day patient fell down, and died on the fourth. *Post-mortem* showed severe gangrenous broncho-pneumonia, which was probably developing during treatment.

(8) On 29th September a case was reported, horse having been ill some six days. Jaws could scarcely be drawn one centimetre apart, muscles as hard as wood, breathing hurried, feeding quite impossible. Before veterinary surgeon's arrival chloral hydrate had been administered *per rectum*, and iodkalium into the trachea by the local man. Subcutaneous injection. This restrained the symptoms for two days, but death took place on the fourth. Unfortunately *post-mortem* was impossible.

To sum up the foregoing cases, we find there is not the slightest doubt that Behring's antitoxin, when administered at the proper time, can cure tetanus in horses. This is a great step in advance in serum treatment. Nocard, it is well known, so late as last year denied distinctly that tetanus in animals could be cured by means of tetanus-serum. At the International Congress at Berne he described some experiments he had made, from which he drew the following conclusion: "It is clear that the curative treatment of tetanus with serum is at the present moment a pure myth. There is not much to hope for, from the therapeutic point of view, from the employment of anti-tetanic serum. I repeat: the poisoning is fully developed as soon as the first symptoms are observed—from that moment there is no hope." On the other hand, M. Nocard very urgently recommends the application of tetanus-serum for prophylactic purposes, and has himself obtained some very fortunate results thereby. If we enquire into the causes of M. Nocard's failure to obtain favourable therapeutic results, we shall probably find that the difference lay only in the quality of the antitoxin used by him and by us. Nocard had to work with a serum whose value, according to his own statements, was 1 : 2—10 millions, but was scarcely so powerful as that which Behring and myself used in our first therapeutic experiments on the horse. The differences in results must accordingly be sought in the difference in effective value of the antitoxin employed, and there will be no difficulty in tracing them.

## TUBERCULOSIS OF THE HEART.

THE heart of a cow, weighing thirty-two pounds, and invaded with tubercles, was recently sent as a specimen to the College by Geo. W. Carter, Esq., F.R.C.V.S., Keighley, who states that up to a month from the date of her death the cow was milking well, and showed no signs whatever of ill-health. The case was diagnosed by Mr. Carter as one of traumatic pericarditis. On examining the organ the muscular wall was found to be everywhere invaded with large yellow caseous nodules. The ventricles were in some parts made up entirely of these caseating firm, dry masses, bounded on one side by the epicardium, and on the other by the endocardium. In length some of these masses measured three inches, and in breadth an inch. They were limited from each other by capsules of the condensed inter-muscular connective tissue of the heart.

It is remarkable that the heart could have carried on its functions so well that no circulatory disturbances showed themselves until within a month of the animal's death. The lesions observed here were certainly part of a chronic process, and must have been a long time in developing. Tuberculosis of the heart-wall, or, indeed, of any muscle, is not common.

There is in the Museum of the New Veterinary College the heart of a dog with tubercular foci in the wall, but in this case it was part of an acute miliary tuberculosis, where nearly every organ in the body was attacked.

---

## FOLLICULAR MANGE.

BY X.

AMONG the numerous skin diseases that one finds affecting the dog, there is none so unsatisfactory, or perhaps so unpleasant to treat, as that of the mange caused by the demodex folliculorum. Is this disease getting more common than it used to be? It really seems as if such were the case, and it is frequently asserted by veterinary surgeons that more cases are met with in practice now than formerly.

With regard to the diagnosis of the affection, one is guided by several symptoms. The disease usually begins about the head (in the neighbourhood of the eyes particularly) with extension from there to the forelegs and feet, and then to the sides, and when generalized to the rest of the body.

There is little or no pruritus, so that the scratching seen in sarcoptic mange is wanting.

The eruption is pustular, the affected parts being the seat

of elevations filled with a purulent material; these burst and leave red crusts.

The malady is little contagious.

The odour emitted from the body of the diseased animal has something characteristic about it, and it is compared to the smell of mice. If it is a mousey odour, it is a very concentrated one, and if the patient is a large animal is capable of stinking a kennel. The most reliable means of differential diagnosis is of course the finding of the acarus, and this is as a rule quite easy, the parasite being present usually in enormous numbers, a hundred or more in a hair follicle sometimes, it is said. A drop of the fluid from a pustule placed on a slide, and a cover glass pressed on to it, suffices for preparation. This, examined with a low power, shows the acarus with its four pairs of short legs placed towards the anterior part of the body, which is somewhat oval in shape, and about 1-60th inch long. If there are no pustules, a scraping from the crusts mounted in a drop of glycerine does quite as well.

The treatment of the malady is a serious matter. If the disease is generalized the animal usually dies in marasmus —a wretched object—and it is only when one is called in during the earlier stages, when the affection is local, that the prognosis is favourable. The tar and sulphur preparations with oil are useful, but frequent washings are to be avoided, the oily substance being left on and repeated, without washing off. A solution of Peruvian balsam in spirit makes an excellent dressing, and so does Peruvian balsam and lard, the spirituous solution being preferable, however, as it penetrates better. The strength should be one of balsam to four of spirit. A liberal diet should be given and tonic medicine administered, Easton's syrup in half teaspoonful doses being a good example of such. This can be given twice a day.

---

## EDINBURGH VETERINARY MEDICAL SOCIETY.

THE annual dinner of the above Society was held in the Grand Restaurant on the evening of Thursday, March 4th. This Society is one of the oldest of its kind, having been founded in turn by the late Professor Dick. For a number of years it held its meetings in Clyde Street, but, owing to unjust interference with its rights, it migrated to Gayfield House, and, finally, to the New Veterinary College.

The usual loyal toasts were proposed by the PRESIDENT (Professor Davis).

"The Army, Navy, and Auxiliary Forces" was proposed by Mr. BRITTLEBANK, who referred to the possibility of some of those present ultimately finding themselves occupying honourable positions in the A.V.D.

This toast was replied to by Mr. HARMAN.

Mr. SCHORN, in a few well-chosen words, proposed "The Profession," coupled with the name of Principal WILLIAMS, who, in reply, made a few remarks upon the discreditable and almost incredible attitude which some medical men had of late assumed towards the veterinary profession in connection with various specific diseases.

The toast of "The President" was proposed by Professor MCDOUGALL in his usual happy and humorous style.

In replying, the PRESIDENT availed himself of the opportunity to point out the advantages of belonging to such a Society and in taking part in the discussions at its meetings. This, he said, gave students confidence, and was of material assistance in teaching them how to muster their ideas and formulate answers to examination questions.

"The Sister Profession" was proposed by Mr. PORTEOUS, who jokingly said that however much the veterinary profession owed to its sister profession in its teaching of antiseptic surgery and similar modes of procedure, still, he considered that the veterinary surgeon was superior to the medical man, because the latter has to ask a host of questions, during the asking of which the veterinary surgeon would, in all probability, have examined several horses.

Professor BRADLEY replied.

"Our Guests" was proposed by Mr. SAVAGE in a neat little speech, and replied to by Mr. BERT WILLIAMS.

The evening was pleasantly and quickly whiled away by numerous songs, many of which were of very high-class merit, and would have done credit to professional singers.

---

## Army Veterinary Department.

VETERINARY-COL. J. D. LAMBERT, C.B., Director-General, Army Veterinary Department, attended the Levée held by H.R.H. the Duke of Connaught, at St. James's Palace, on the 15th instant, and presented the under-mentioned veterinary officers;—Veterinary-Captains J. A. Nunn, C.I.E., D.S.O., J. B. Savage and A. J. Haslam; Veterinary-Lieu-

tenants J. Moore, H. J. Sawyer, H. M. Lenox-Conyngham, F. H. Shore and W. A. Pallin.

Veterinary-Lieutenant-Colonel H. Thomson embarked in P. and O. "Himalaya," on the 13th instant, for India, to take up the duties of Inspecting Veterinary Officer, Punjab command.

Veterinary-Captain J. A. Braddell arrived from India, 16th instant, on six months' sick leave of absence.

*Extract from London Gazette, March 2nd*, 1897.—"The Queen has been pleased to grant to each of the undermentioned officers in H.M.'s Army her Royal licence and authority that he may accept and wear the decoration signified against his name, conferred by His Highness the Khedive of Egypt in recognition of active and distinguished service before the enemy during the recent expedition to Dongola:—Veterinary-Lieutenant W. D. Smith, A.V.D., Medjidich, 4th class . . . ."

*Departures.*—Veterinary-Lieutenant E. Wilkinson embarked in s.s. "Rome," 26th ultimo, to proceed to India to complete tour of foreign service.

Lanarkshire (Queen's Own Royal Glasgow).—Veterinary-Lieutenant W. Boyle resigns his commission; J. M. McCall, M.D., to be Veterinary-Lieutenant.—*London Gazette.*

---

# Cases.

## PERICARDITIS IN THE COW.

BY JOHN HUTTON, ESQ., F.R.C.V.S., KELSO.

I RECENTLY attended a cow, the property of a neighbouring farmer. The animal was reported to be suffering from indigestion, as it occasionally had attacks of tympanites, loss of appetite, and emitted the painful grunts so often noticed as an accompaniment to gastric troubles in the ruminant. On examining the cow I soon found that, although the symptoms of indigestion were certainly in evidence, there was a far more serious condition present. The breathing was difficult and much accelerated; there was a cough and grunt. The maxillary space and the dewlap were markedly œdematous, and in both jugulars a reflux of blood could be seen going far up the neck. I was told that the cow had only been ill a week, and in the first days of that time was very slightly amiss. However, she was now in a condition that nothing could be done for her. She rapidly became worse and died

a few days afterwards. The *post-mortem* showed that the cow was affected with pericarditis, and as the pericardial sac was so greatly distended with fluid, I sent the lungs and the heart (entire) to Principal Williams, who states that the fluid was collected and measured three hundred ounces (nearly two gallons). It was of a low specific gravity (1012), was turbid and extremely fetid. The pericardium was smooth externally, but internally it was covered with coagulated fibrin and was greatly thickened; the heart muscle was very pale, and the valves and orifices healthy. No traumatic agent could be found. On the left side the posterior part of the lung was firmly adherent for some distance to the pericardium, and, although the remainder of the lung was quite healthy, here was found an abscess containing two ounces of fluid and about the same quantity of inspissated pus. In endeavouring to detach the abscess wall from the pericardium it gave way, and there was a gush of the fetid pericardial fluid, so that it could not be well determined whether there ever had been any communication between the two cavities. I have stated that no foreign body could be found, and there were no indications that the diaphragm had been traversed by such. The cow had been quite healthy up to the time of its fatal attack, and had not suffered from puerperal or other trouble that might have been followed by a pericarditis, so that the exact cause is difficult to assign, except, indeed, the lung abscess could have been the point of departure.

---

## RAREFYING OSTITIS.

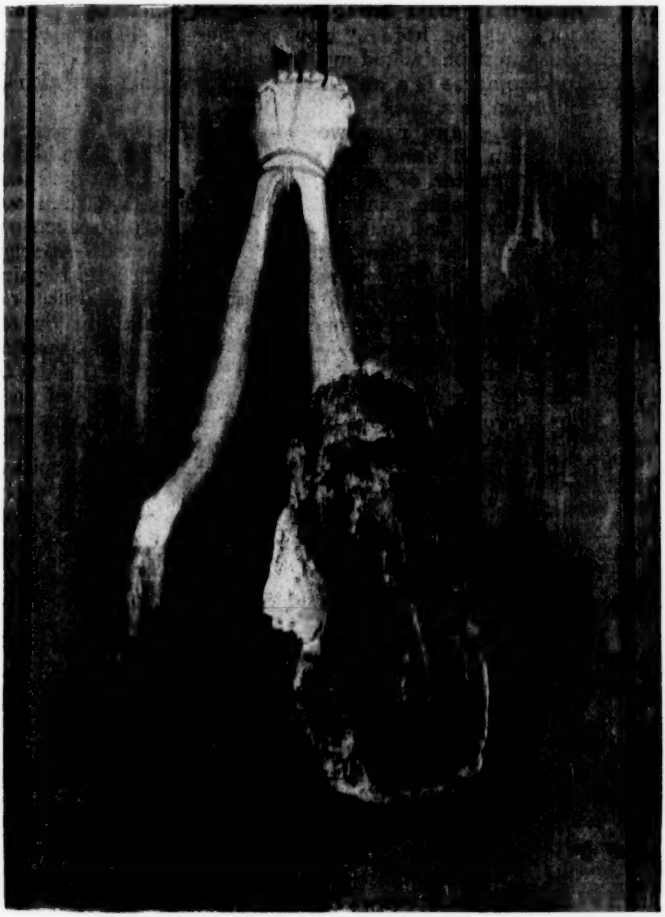
BY FRANK SOMERS.

### *History of Case.*

THE specimen, of which you have a photograph, was the lower jaw of a dark brown Shire horse, and exhibited before the members of the Yorkshire Veterinary Medical Society by Mr. Philip Deighton, veterinary surgeon, of Selby.

In June, 1893, when the animal was a yearling colt, it fell into a ditch, and in order to draw it out a thick rope was fastened round the neck. Owing to the violent pressure on the lower jaw an abscess formed, which Mr. Deighton lanced. For two or three years the swelling kept gradually enlarging, and Mr. Deighton diagnosed some considerable disease of the bone. It was regularly worked with an *open-topped collar* until within a few months of its death, as it was so very difficult to approach. Some few months ago the animal los

flesh considerably, owing to refusal to take food, and the jaw was very much more painful, with very considerable disease of surrounding structures, which caused the animal to be



destroyed. I have had some trouble in procuring this specimen for your college, and of which I have forwarded you a photograph.

## A CURIOUS CASE FOR DIAGNOSIS.

BY "VINDEX."

NOT long ago a groom brought a horse for me to pass an opinion upon, as the horse "wouldn't trot!" I have often had curious questions asked me, but this was one of the most curious, as the horse is a well-known hunter, and has also a good reputation as a hack.

The knee-caps and rugs were taken off, and the groom tried to trot him in hand, but was unsuccessful. The horse would walk or canter, or gallop, but not trot. I changed the bridle, put on a snaffle, changed to a halter, put a man on his back, changed and put another up, but on no account could I or anybody else get that horse to trot. Being puzzled, though thinking there was heat and slight pain below the knee, I ordered cold applications for a couple of days. He was then seen by one of us, when brought out of the stable, trotting along all right, and was ordered to work.

Being hard frost, he couldn't go to work for several days, but on the expiring of the frost, when mounted, walked and cantered, but wouldn't trot. However, he still trotted when led.

On careful examination, I discovered that he had a bruised side, and which, on pressure, made him wince a great deal. This I treated in the ordinary way (though in dread of diseased deep-seated tissue), and, fortunately, in a few days he was sound and fit for work.

---

# Editorial.

*Report of the Departmental Committee appointed by the Board of Agriculture to inquire into and report upon the Working of the Laws Relating to Dogs, etc.*, 1897.

A BLUE BOOK covering some 16 pages, embracing the opinions of the Principal of the Animals' Division (Major Tennant), Mr. Cope, Chief Veterinary Officer of the Board, Mr. Woodroffe Hill, F.R.C.V.S., and 24 other witnesses; chief constables, commissioners of police, and others interested in the laws relating to dogs.

On the 7th page it is interesting to find—

From 1889 to 1892 muzzling regulations were imposed by a central authority over wide areas, embracing the districts of numerous local authorities, whilst in the period from 1893 to the present time, it has been practically left

to local authorities to decide, each for themselves, whether or not muzzling regulations should be imposed.

A comparison of the two systems is of the first importance in the consideration of the lines upon which the law is hereafter to be administered, and the facts which such a comparison elicit are fortunately so striking as to leave no room for doubt as to the relative values of local and central control in this matter.

In the four years during which muzzling regulations made by the Board of Agriculture were in force, the number of cases of rabies in dogs reported was as follows :—

In 1889 there were 312 cases.
„ 1890 „ 129 „
„ 1891 „ 79 „
„ 1892 „ 38 „

Since the issue of the Rabies Order of 1892, and the practical relegation to local authorities of the duty of making muzzling orders, the disease has shown a very marked increase ; the number of cases reported has been as follows :—

In 1893 there were 93 cases.
„ 1894 „ 248 „
„ 1895 „ 672 „

In 1895, owing to the great prevalence of disease, muzzling regulations were more generally enforced by local authorities, and in 1896 there were in the 49 weeks ended the 5th December 422 cases reported as compared with 649 in the corresponding period in the preceding year.

Rabies in London has followed very much the same course as in the case of the country as a whole.

Muzzling regulations were in force in the County of London from August, 1889, to October, 1892. They were then withdrawn, but they were re-imposed in February, 1896. The number of reported cases was as follows :—

In 1889 there were 123 cases.
„ 1890 „ 32 „
„ 1891 „ 13 „
„ 1892 „ 3 „
„ 1893 „ 8 „
„ 1894 „ 12 „
„ 1895 „ 46 „

Since the re-imposition of the muzzle in February, 1896, the number of cases for each month, up to and including November, has been—February, 22 ; March, 21 ; April, 10 ; May, 11 ; June, 11 ; July, 11 ; August, 2 ; September, 1 ; October, 4 ; and November, 2.

It will be seen that the general results of the imposition of a muzzling order in London correspond with the results derived from the whole country, and we have reason to believe that the figures for every other area over which muzzling has been applied would teach the same lessons.

The number of deaths from hydrophobia in England and Wales in the same period presents similar features, and was as follows :—

In 1889 there were 30 deaths registered.
„ 1890 „ 8 „
„ 1891 „ 7 „
„ 1892 „ 6 „
„ 1893 „ 4 „
„ 1894 „ 13 „
„ 1895 „ 20 „

These statistics appear to us to fully confirm the views expressed in their evidence by the Chief Veterinary Officer and the Principal of the Animals' Division of the Board of Agriculture, and to justify the conclusion, at which

we have arrived, that muzzling is not only an efficient, but the only means which is now practicable, for the extermination of rabies, but that the powers of muzzling as exercised since 1892 by local authorities, acting in complete independence of one another, are inadequate to eradicate rabies, and only result in temporary and local checks to its spread. As the Principal of the Animals' Division of the Board of Agriculture stated in his evidence: "The disease will continue to rise and fall in waves unless it is altogether eradicated," and "so long as the public look upon it with indifference, the disease will rise; so soon as they begin to be at all alarmed, then the necessary steps will be taken to decrease it."

The futility of the system which has been in operation since 1892, largely accounts, in our opinion, for its unpopularity. It produces the maximum of local irritation with the minimum of general and permanent good. Surrey naturally grumbles at the retention of a muzzling order within its limits, when Berkshire, coterminous with it, is permitting its dogs to go unmuzzled, even although an outbreak of rabies may have occurred much closer to the Berkshire boundary than are a very large number of the dogs required by Surrey to be muzzled.

The state of things in Lancashire and West Riding of Yorkshire is still more striking. In each of these counties the county area is studded with borough islands, Lancashire being governed in this matter by no fewer than 34 separate local authorities, and the West Riding by 16. Each one of these separate local authorities imposes or remits muzzling orders according to its own pleasure and convenience, often without regard to the action of neighbouring authorities or to the general weal of any large tract of country.

On the other hand, the Board of Agriculture, under the law as it stands, have the power and the machinery necessary to enforce muzzling in a general and systematic way, and experience has shown that by the exercise of the functions vested in them as a central authority, the suppression of cattle plague, foot-and-mouth disease, and pleuro-pneumonia has been obtained.

We think, therefore, that the time has come and that the circumstances are opportune for the Board of Agriculture to make a determined and systematic attempt to stamp out rabies.

This will not, in our opinion, involve universal muzzling, inasmuch as there are districts where rabies has never appeared.

What is necessary is that the Board of Agriculture should have regard to the country as a whole and should impose muzzling over considerable areas, irrespective of the boundaries of boroughs and counties; that the Board should impose it, in fact, where it is really required, and leave the rest of the country free. We believe that much of the feeling against the present capricious and ineffective system of partial and uncertain muzzling will not show itself against the operation of a centralised system carried out on well-considered lines and effectively producing the result which all desire to see achieved, viz., the suppression of rabies.

We confidently hope that our proposal will achieve this result, and that it will then become unnecessary again to resort to a measure the inconvenience of which we fully recognise, but which we now recommend as the one practical means to a much desired end.

On page 9 the question relating to the importation of dogs is briefly discussed, but the commissioners merely state "that they have arrived at the conclusion that, without resorting to the extreme remedy of absolute prohibition of the importation of dogs from abroad, or their subjection to what has been termed quarantine at the place of importation, it would be

possible for the Board of Agriculture to arrange, in concert with the Customs Authorities, a system under which a sufficiently effective supervision may be secured over dogs landed in this country."

I consider the above conclusion to be too feeble to attain its object. If absolute prohibition of the importation of dogs from abroad and their subjection to quarantine regulations are considered non-essential, the commissioners ought to have formulated a scheme to keep this country free from foreign infection. I am of opinion that no dogs from abroad should be set free in this country until they have been subjected to at least three months quarantine. I, however, agree so far with the majority of the commissioners that the law regarding the wearing of collars and registration of dogs should be uniform and worked through the agency of the Board of Agriculture. The commissioners are divided on this point, but I have no sympathy with the minority, who consider the advisability "in such matters of conciliating local opinion and sentiment" by recommending that a law should be passed enabling local authorities to put in force registration and collar orders within their districts. Nor can I agree with the Board in the opinion that universal muzzling is not necessary in an attempt to make a determined and systematic attempt to stamp out rabies. A glance at the statistics of cases from 1889 to 1892 when the regulations by the Board were in force, and those of 1893 to 1895, when the power was relegated to local authorities, will at once demonstrate the strength of the one and the weakness of the other, but I would even go further and recommend that muzzling should be universal, both in Great Britain and Ireland, for at least three months after the cessation of the latest outbreak.

No doubt many will object to this as being unnecessary and cruel, some even say that muzzling is cruel at all times, and that it should never be resorted to. I cannot look at the matter in the above light at all. I grant that muzzling is an inconvenience, but it is a necessity, and it will be far better advisable to have it extended over the whole country for a short period of time, or until the disease has been entirely eradicated. This once accomplished, and proper regulations enforced as to the landing of dogs from abroad, there would be but little further fear of the re-appearance of the disease, and a blessing conferred upon the people for all time to come.

"Though the laws relating to dogs in Ireland are very similar to those in operation in Great Britain there is such a

diversity between them, and between the administrative authorities in Ireland and Great Britain, as to make it necessary that we should now make some special and distinct references to Ireland."

It appears that, in Ireland in 1889, there were 240 cases of canine rabies reported; in 1890, 247; 1891, 262; 1892, 274; 1893, 269; 1894, 526; and in 1895, 567. Considering the size of Ireland these numbers are appalling, but we cannot wonder at them; as the Diseases of Animals Act which constituted the Boards of Guardians the local authorities for giving effect to its provisions, raised their total number from 721 under the Dogs' Act, 1871, to 880, "the majority of which exercising their function over too restricted an area to permit the use of their powers to any good purpose, while the conflict and confusion not unfrequently created by the overlapping of rival authorities, each with a different code of regulations, prove a serious hindrance to effective administration."

Bad as it seems there is some hope yet, the Commissioners pointing out that the repeal of the Dogs' Act of 1871, as proposed by the Dogs' Consolidation Bills of 1894 and 1895, leaving but one set of local authorities in Ireland for the purpose of dealing with rabies, would remove many existing anomalies, and tend to secure more effective administration."

If it be considered that but one set of authorities will remove many existing anomalies in Ireland, why distribute this power beyond the Board of Agriculture in Great Britain?

---

On the 23rd March, 1897, the Board of Agriculture issued two Orders relating to rabies, one entitled "City and Metropolitan Police Districts (Muzzling of Dogs) Temporary Order of 1897," and the other, "Rabies Order of 1897."

This latter Order is the one of most importance.

Firstly, it shows that the Board of Agriculture have now recognized the serious harm that rabies is causing throughout the country, and secondly, and of great importance to us as a profession, the recognition we now receive.

Our readers are referred to a few abstracts from the new Order.

(5578.)

ORDER OF THE BOARD OF AGRICULTURE.

(Dated 23rd March, 1897.)

RABIES ORDER OF 1897.

The Board of Agriculture, by virtue and in exercise of the powers in them vested under the Diseases of Animals Act, 1894 and 1896, and of every other

power enabling them in this behalf, do order, and it is hereby ordered, as follows :—

*Notice of Disease.*

1.—(1.) Every person having or having had in his possession or under his charge an animal affected with or suspected of rabies shall with all practicable speed give notice of the fact of the animal being so affected or suspected, to a constable of the police force for the police area wherein the animal so affected or suspected is or was.

(2.) The constable receiving such notice shall immediately transmit the information by telegraph to the Secretary, Board of Agriculture, 4, Whitehall Place, London, S.W.

(3.) The constable shall also forthwith give information of the receipt by him of the notice to an Inspector of the local authority, who shall forthwith report the same to the local authority. . . .

*Compulsory Slaughter of Dogs.*

4. A local authority shall cause to be slaughtered every dog within their district which is diseased or suspected or which has been bitten by a diseased or suspected dog.

*Orders to give Facilities for Slaughter.*

5.—(1.) Where the power of causing any dog to be slaughtered under this Order is exercised by a local authority, the owner and person in charge of such dog shall give all reasonable facilities for that purpose. . . .

*Post-mortem Examination.*

6.—(1.) Where an animal has died of, or has been slaughtered on account of, rabies or disease supposed to be rabies, the local authority shall, previous to the disposal of the carcase, cause a *post-mortem* examination to be made thereof, in which case such examination shall be conducted by a veterinary inspector or veterinary surgeon specially appointed in that behalf, who shall forthwith report to the board, in such form as may be required, the result of such examination. . . .

(3.) A certificate of a veterinary inspector to the effect that an animal is or was affected with rabies shall, for the purposes of the Act of 1894 and this Order, be conclusive evidence in all courts of justice of the matter certified. . . .

*Seizure, Detention, and Disposal of Stray Dogs.*

10.—(1.) A local authority shall cause all stray dogs found within their district to be seized, and such dogs so seized shall be dealt with as follows:

(i.) If the dog is diseased or suspected, or has been bitten by a diseased or suspected dog, it shall be forthwith slaughtered;

(ii.) If the dog has been exposed to the infection of rabies, it shall be detained, slaughtered, or otherwise dealt with as the local authority think expedient, but so that the dog shall not, while detained by the local authority, be allowed to come in contact with any other animal. . . .

*Interpretation.*

23. In this Order, unless the context otherwise requires,—

"The Board" means the Board of Agriculture:

"The Act of 1894" means the Diseases of Animals Act, 1894:

"Animals" includes, with the Animals specified in the Act of 1894 (that is cattle, sheep, and goats, and all other ruminating animals, and swine), horses, asses, mules, and dogs:

"Disease" means rabies, "diseased" means affected with rabies, and "suspected" means suspected of rabies:
"Public place" includes any street, highway, thoroughfare, public bridge, royal park, public park, garden or pleasure ground, common, uninclosed land, or other place to which the public have for the time being access:
"Inspector" includes Veterinary Inspector:
"Carcase" means the carcase of an animal, and part of a carcase, and the meat, flesh, bones, hide, skin, hoofs, horns, offal, or other part of an animal separately or otherwise, or any portion thereof:
Other terms have the same meaning as in the Act of 1894.

---

VETERINARY INSPECTORS of markets, etc., will have to be alert, as there is another and serious outbreak of pleuro-pneumonia in England.

Out of between thirty and forty slaughtered, eight were found to be affected, and one was found to have an old *encysted piece* of diseased lung. This cow's history has not yet been thoroughly traced out; but so far it is supposed to have been bought in London, and originally came from Buckinghamshire.

The thing is most serious, and everyone must do all he possibly can to prevent the disease again spreading over the country.

---

I CANNOT help referring to the loss to the profession by the death of Mr. Dudgeon, of Sunderland, a well-known and highly-respected practitioner, a very genial and lovable man, and who, in a quiet and unassuming way, did much to enhance the elevation of the profession. He had arrived at a good old age, and died regretted by all who knew him.

---

## Proceedings of the Veterinary Medical Societies, etc.

### SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

A MEETING of the Scottish Metropolitan Veterinary Medical Society was held on Wednesday afternoon, 24th February, in the Clarendon Hotel, Princes Street, Edinburgh. Mr. John Cameron, Berwick-on-Tweed, the retiring president, occupied the chair at the commencement of the proceedings, and there was a large attendance. Among those present were Principal Williams, Professor McIntosh M'Call, Professor W. O. Williams, Mr. Peter Moir, Honorary Secretary; Professor McLauchlan Young, Aberdeen University; Professor Stackman, Clyde Street College; Messrs. Boyd, Melrose; T. M. Inglis, Forfar; W. O. Robertson, Selkirk; Connachie, Junr., Ayton; Aitken, Junr., Dalkeith; Veterinary-Lieutenant Newsom, and several visitors.

The minutes having been submitted and approved, the SECRETARY stated that he had received letters and telegrams from several prominent members of

the Society regretting their absence, among them being Messrs. H. T. Thompson, Aspatria ; Rd. Rutherford, Edinburgh ; James Clark, Coupar Angus, &c.

The following two new members were elected : Mr. James Lindsay, Dumfries, and Mr. W. O. Robertson, Selkirk.

The CHAIRMAN in his valedictory remarks said he did not think it was necessary to make a review of what had transpired in the veterinary world since his election as president two years ago. He was very pleased to see that during that period there had been great progress in regard to the subject of tuberculosis. He hoped everyone would continue to be as enthusiastic upon that subject as ever. One matter upon which he had specially touched when elected two years ago was the question of Canadian pleuro. At that time they were told by some of those in high authority that the exclusion of Canadian cattle would tend to give an impetus to the breeding of store cattle at home, and that store cattle would soon come down to a reasonable price. The farmers, however, complained as greatly as ever, and he still thought it was an unwise step that was taken on that occasion. But perhaps two years was not a sufficient length of time to test the wisdom of the change. He had great pleasure in vacating the chair in favour of Mr. Andrew Boyd, Melrose, who was far more fit than himself to discharge the presidential duties.

The SECRETARY (Mr. Peter Moir), moved a hearty vote of thanks to Mr. Cameron for the efficient services he had rendered during his term of office. He said that Mr. Cameron had bestowed great trouble and thought in the furtherance of the objects of the Society.

The vote of thanks was cordially awarded.

Mr. Cameron then vacated the chair, which was taken by Mr. Boyd.

### *New President's Address.*

Mr. BOYD proceeded to read his introductory address, which was as follows:—

Gentlemen, as I said at our last meeting, when I was elected president of this Association, I accepted office with great diffidence. I do so still, because I am not gifted with the power of oratory which should belong to one elected president of this learned Association. However, I am elected, and with the help of my friends, will do my best to promote the welfare of the Association, trusting at the same time you will pardon any shortcomings on my part. To-day we are to have a great treat from Professor Williams in the shape of a lime-light demonstration of the louping-ill organism, and also that of the Jamaican cattle disease, which I am certain all are looking eagerly forward to. Therefore, I claim indulgence for making a short address to suit your tastes. To give a presidential address is a difficulty at any time, especially to an ordinary practitioner, because his time is so very limited, and, in fact, he scarcely has time to collect and record his thoughts to make an address adequate for an occasion like this. It is expected a presidential address should contain something new, but new discoveries are seldom in the ordinary practice, and generally are only seen, as it were, in a mist by the ordinary county practitioner, the perfecting of which falls to the hands and brain of the man of research and time. Since I started practice, the profession has made vast strides in the way of advancement. At one time great difficulty was experienced in diagnosing tuberculosis, but now, with the aid of the tuberculin test, which is of recent origin, tuberculosis is at once detected. In my opinion, the tuberculin test cannot be too highly praised, because in the earliest stages of the disease the tuberculin test will expose it. In the early and active stages of the disease, the test is more pronounced, the temperature rising higher than in the later stages of the disease. Some who have used the tuberculin test, and got a high temperature, and then made a *post-mortem*, have come to the conclusion that the test was a failure, because they

did not get a pleura or a peritoneum covered with tubercle. The mistake rests with the operator, or, rather, with the person who makes the *post-mortem*. In cases where there is a very high temperature and little to be seen, this is indicative of the disease being in its early stage; and a very careful examination of the mesenteric and other glands should be made, and I have no hesitation in saying that if that had been done, the test would have been found correct. Tuberculosis is a disease of vast importance, as affecting the breeding stocks of this country. At one time it was considered that in Ayrshire and Polled Angus, cattle tuberculosis was unknown, but now it is as frequent, if not more so, in these two breeds, as in the shorthorns. The question is—Is the disease hereditary, or is it only contracted by being in contact with diseased animals? There is no doubt if two or more healthy cattle are stalled beside a tuberculous animal, they run a great risk of contracting the disease by inhaling the breath of the diseased animal, and which is of frequent occurrence.

But take a stock, say, of Polled Angus cattle which have never been in contact with other cattle, but kept distinct for a number of years—even in that stock you get tuberculosis.

Take, again, Ayrshires which have been kept distinct for many years, even kept to distinctness by breeding in and in for years, and you get a large percentage of tuberculous animals. I am of opinion that in-and-in breeding is the great cause of the disease. Some maintain that unless the dam has a tuberculous udder the offspring will not suffer. Well, I am of a different opinion. I have frequently removed tubercular nodules from the mouths of calves only a few days old, although the dams had no tubercular udder, but which dams had tuberculosis either of the lungs or bowels.

These calves, if their joints keep right, generally do well, but keep an eye on them till they attain the age of one year or eighteen months and for a certainty a large percentage will die of tuberculosis. If tuberculosis is not hereditary, how is it that the disease was unknown in Canada and the States till cattle from this country were imported for breeding purposes?

Glanders is one of the most fatal and insidious diseases that horseflesh is heir to, a disease easily diagnosed when fully developed, but a disease whose latency is most uncertain. Glanders is a disease communicable to man and always fatal, and a disease then to be feared. In a stud of horses where glanders made its appearance, it was at one time impossible to tell the horses in whose system the poison lay latent, and the disease might break out in the same stud when it was considered outrooted.

By the use of mallein, an extract of the cultures of the glanders bacillus, this difficulty is overcome, because by inoculation with mallein the poison, when lying latent, is at once discovered. I have not had the opportunity of testing the value of mallein myself, and hope never to have the opportunity.

We have another recent discovery in the antitoxin treatment of tetanus, a disease the true pathology of which, till recent years, was very obscure, but now it is found to be due to the presence of a bacillus. Tetanus, a disease the treatment of which baffled all the medicines in the pharmacopœia, is now combated by the use of tetanic antitoxin. From those who have used it we learn that it is of the greatest value in combating the disease. It is a great pity that the tetanic antitoxin should be so expensive and so very difficult to procure, and I think it should be the endeavour of the profession to make the cure more reachable and universal. At one time it was considered desirable to get a wound to suppurate well, but it is now considered quite the opposite, and in the medical profession it is almost considered criminal to allow suppuration to take place; but the medical profession have not the same difficulties to contend with as the veterinary surgeon. In the first place wounds in horses are very frequently lacerated wounds, which must of a necessity

suppurate to a certain extent to separate the dead tissue, but again, when there is hair on the part, there is almost certain to be a microbe, which has now been found to cause suppuration, and being armed with that knowledge we can, to a great extent, now prevent suppuration. I think I am safe in saying the veterinary profession has now attained a high standard as regards the teaching in the veterinary colleges. Within recent years there has been a great revolution in the teaching of veterinary students. At one time a simple preliminary examination was asked, but now the preliminary examination is a fair test of a good education, an education fit for a social position, and without which general respect is often denied. Instead of two sessions, as formerly, the time has now been extended to four sessions, which gives the advantage of dividing the subjects and examinations, and must of a necessity be easier for the student and afford him a better opportunity of getting a thorough knowledge of all the subjects.

Take the three subjects—morbid anatomy, histology, and physiological materia medica, which are now more elaborately taught than formerly; indeed, if the veterinary surgeon, say, of twenty years' practice, does not read and keep himself up with the times, he finds himself in a mist when he meets with the teachers of these subjects. Speaking for myself, I must confess I feel it a pleasure to meet with the teachers of these subjects I have named, because one always learns something by having a friendly chat with them. It seems strange that, although the profession has attained such a position, both social and scientific, the Board of Agriculture should treat us as if our position were that of a policeman or butcher's assistant. It also seems strange that the lungs of pleuro-pneumonia cattle, the stomach, intestines, etc., of pigs suffering from swine fever, must be sent to London to be examined, especially when we have so many good men in Edinburgh. It is ridiculous to think of Principal Williams sending such to London for examination, because we are all well aware he is head and shoulders above those who do examine the parts sent. No doubt the Board stamped out pleuro-pneumonia, but they stamped it out by the sheer force of the pole-axe, and at great expense to the country, and threw science to the winds. If the Board had given inoculation a trial, which was so strongly advocated by our friend Mr. Rutherford, whom I may term the pioneer of inoculation in Scotland, and who had the strong support of the veterinary profession, I feel certain pleuro-pneumonia would have disappeared as surely as it has done by the unlimited use of the pole-axe, and at less expense. Swine fever has not succumbed so easily to their magic wand, and I am now inclined to think that swine fever is more of a reality than some of the so-called cases of pleuro-pneumonia, such as those of the cattle from Canada. I am glad to see the Board has altered somewhat lately, regarding the profession, although nothing but legitimate agitation has been used; so we must live in the hope that the Board will go on in the same direction, which I am certain will be beneficial both to the country and the profession.

A hearty vote of thanks was given to Mr. Boyd for his address.

### *Septicæmia in Calving Cows.*

A brief discussion took place upon the paper on "Septicæmia in Calving Cows" which was read by Mr. Boyd at the Society's summer meeting at Melrose in August last year, and which has already been reported.

Mr. Boyd recapitulated the outstanding points in his paper, remarking that septicæmia was due to some septic material getting into the blood, and attributing the cause to bad sanitation. At the time of parturition the generative organs were in a highly favourable state for the reception and cultivation of bacilli. He was of opinion that a great many of the so-called cases of milk-fever were nothing more or less than septicæmia.

Principal WILLIAMS said he had no doubt whatever that calving houses contaminated to such an extent as had been described by Mr. Boyd, became a source of infection. They were well aware that cattle and horses, like human beings, were able while in a healthy state to resist to a remarkable extent the effects of putrefactive material. There was a force of vital resistance within the healthy body which overcame the attacks of ordinary organisms by which they were constantly surrounded. The navel, immediately after evacuation, became ruptured, and there was a raw surface left. Through this raw surface the ordinary microbes of putrefaction, which generally had no effect upon a healthy body, entered the animal's body through the navel string. He insisted strongly upon cleanliness being observed in the calving house, and said that very frequently fatal consequences ensued to the cow from the fact of an attendant with dirty hands and filthy clothes having been engaged at the calving operation. Any putrefactive material in the place gained entrance to the generative passages, and the result was an attack of septicæmia, manifested by what they called inflammation of the uterus. This form of inflammation was associated with coagulation of the blood within the vessels. Hence the old writers called it inflammation of the veins of the womb on account of the coagulated condition of the blood-vessels found after death. This coagulation, however, was simply due to the action of the microbes which gained entrance. Many microbes which gained entrance into the system were destroyed by the oxygen. They could not live in the presence of oxygen, because it burned them up. Sunlight had also a remarkable effect in destroying microbes. The lesson Mr. Boyd had taught them was that animals were exceedingly susceptible, owing to the debilitated condition of the parturient animal and of the animal newly born, to the entrance of these organisms into their systems, and very liable to succumb. With cleanliness and proper attention the animal system was able to resist any ordinary putrefactive material that might be going about. The cows before calving should be put in a clean house, which was fairly well drained. He had been very much interested in Mr. Boyd's paper, because that gentleman had a great deal of experience in the matter.

Mr. JOHN CAMERON, Berwick-on-Tweed, said he had had some cases which appeared to be septicæmia, but it was not very easy to differentiate between it and milk fever. He mentioned that many people put on a rug or cover of some sort upon cows that had newly calved, and they considered that anything was good enough for the purpose. If it was not actually wet or damp, anything was considered good enough to put over the cow. It was just a question whether dirty filthy coverings might not be a danger in giving something of that sort.

The CHAIRMAN said he was of the same opinion as Mr. Cameron with regard to these rugs. In the case of calving or milk fever, the first thing the country people ran for was a sheepskin. It might be the skin of a ewe that had had inflammation, and as sure as that was put over the cow it would die of the same disease. The cold east winds got the credit of bringing about navel-ill in lambs, but he was of a different opinion. The cold winds made the young lambs cling close to their mothers, and, if decomposing placentas were allowed to lie about, the lambs became ill and suffered from septicæmia.

### *Election of Council.*

The CHAIRMAN stated that before their next meeting the nomination and election of members of the Council of the R.C.V.S. would have taken place. Principal Williams retired this year, but was eligible for re-election. They all wanted Principal Williams elected, and the Chairman appealed to all the members to give the Principal their strong support.

Mr. CAMERON said that the nomination of the Council of the Royal College of Veterinary Surgeons had been to him a perplexing subject on many

occasions. It was customary nowadays for various associations to ask others to support their nominations. On some occasions he had voted for the nominees of other societies, but he was afraid that in the past they had given them in the north very little support in return. It was really a question whether they should not just "plump" on this subject.

Principal WILLIAMS said he really thought it was time for him to retire. He had been nearly thirty years a member of the Council, and he was afraid he was not now able to give the same attention to the work that he formerly did. His son came out of office this year also, and he suggested they should support him instead. Most of his own friends were now dead, and social meetings in London were not quite so congenial as they used to be. Besides that, he had repeatedly gone to London to attend a meeting of Council in order to support or oppose certain measures, and after arriving at the meeting he discovered that the whole thing had been shelved. He had to come away, after spending his money and time, without being able to attain the purpose for which he had gone to London.

Professor W. O. WILLIAMS suggested that the Society should support the nomination of Principal McCall, of Glasgow, who was not a member of Council. He thought it only right that every sister society should have a representative upon the Council, and he hoped they would all do what they could to give the Glasgow Veterinary Society a representative. The Glasgow veterinary surgeons really took the most interest in their profession.

Mr. CAMERON said he felt greatly annoyed that Professor McCall was shunted last year, and he appealed to every member of the profession in Scotland to remedy the mistake made on that occasion. It was not only an insult to Scotland, but a disgrace to the whole profession that Professor McCall was not elected last year.

The CHAIRMAN thought it would be a good thing to send up the names of the two principals for nomination, along with Professor W. O. Williams.

This suggestion seemed to find favour with the meeting.

### *Public Health (Scotland) Bill.*

Principal WILLIAMS said they must not fail to take note of the Public Health (Scotland) Bill. He rather thought an attempt was being made to sit upon them as members of the veterinary profession. Those in authority seemed very anxious to make the doctor both a veterinary surgeon and a medical man. He thought they should not allow that to be done. They had been grossly insulted by an ignorant man in Birmingham, who seemed to arrogate to himself and his brethren in the medical profession, all the knowledge in the world in regard to veterinary matters. He thought they should express their indignation that a member of a sister profession should take it upon himself to abuse a profession which was, at least, doing its very best. He proposed that they should draw up a memorial protesting against clause 57 of the Public Health (Scotland) Bill, and point out the injustice done to the veterinary surgeon, who was requested to be simply a jack-in-office, to do whatever was the bidding of the medical man. According to this clause, "if any district is suffering from infectious disease attributed to milk supplied from any dairy situated within the district, or if the consumption of such milk is likely to cause disease to any person residing in that district, the medical officer of health shall, if authorised by warrant of a sheriff, magistrate or justice of the peace having jurisdiction in the place where the dairy is situated, have power to inspect the dairy, and be accompanied by a veterinary inspector or some other person properly qualified to inspect the animal; and if on such inspection the medical officer is of opinion that any such disease is caused by consumption of the milk supplied therefrom, he shall report thereupon to the local authority, and his report shall be accom-

panied by any report supplied to him by the said veterinary inspector." He thought the whole thing was the wrong way about. The secretary should be instructed, on behalf of the Society, to draw up a memorial on the subject for presentation to the President of the Royal College of Veterinary Surgeons.

Mr. CAMERON suggested that copies of the memorial should also be sent to the local members of Parliament.

Professor W. O. WILLIAMS mentioned that he had attended the annual meeting at Manchester lately, and had drawn the attention of the members of the Royal College to the fact that the obnoxious clause which was inserted in the Bill last year, and which was crossed out, had been allowed to remain in the fresh Bill as it was now before Parliament. The Secretary promised to go to London and look after their interests, and he had no doubt that gentleman would do his utmost to protect their interests. Professor McCall had told him that the Glasgow Society unanimously passed a resolution protesting against the clause.

Professor MCCALL stated that Professor Dewar, of Edinburgh, attended the meeting of the West of Scotland Veterinary Association, and after hearing him on the subject, they unanimously passed a resolution in the following terms:—"At a meeting of the West of Scotland Veterinary Association, held here to-day, it was unanimously agreed to call the attention of the President and Council of the Royal College of Veterinary Surgeons to the provisions of the Public Health (Scotland) Bill now before Parliament. This Bill is practically the same as the Bill of last year, and notwithstanding the action then taken by the Council and the profession, has again been introduced in the same objectionable form. Not only will it affect Scotland if it becomes law, but it will form a precedent for future legislation to the detriment ot the whole profession. Action was taken last year to prevent the carrying of amendments proposed by the Corporation of Glasgow in section 57, which would have had the effect of recognising medical officers of health and sanitary inspectors as legally qualified to inspect and examine dairy cows, while the veterinary surgeon would have been altogether ignored. Although we do not anticipate that these amendments will be again attempted, it is advisable that this should be carefully watched. By section 40, relating to unsound food, any medical officer or sanitary officer may inspect any animal intended for the food of man which is exhibited for sale, or is in the course of transmission for the purpose of sale, or of preparation for sale, and if the animal appears to such medical officer or sanitary inspector to be diseased or unsound, or unwholesome, or unfit for the food of man, he may seize and carry away the same. Under this section, the examination of animals by the medical officer and sanitary inspector is recognised as legal, and the veterinary surgeon is altogether ignored. This appears to be a retrograde policy, and detrimental to the interests of the profession and to dairymen, stock breeders, and the public generally. Hitherto veterinary inspectors have been considered qualified to examine stock. As this Bill takes so much cognisance of animals in connection with unsound food and the inspection of food, it seems that provision should have been made for the appointment of veterinary inspectors. We hope the Council or its parliamentary committee will lose no time in taking such steps as it may consider convenient either in circularising the profession, or memorialising members of Parliament, or in whatever way they think best to prevent the passing of the measure in its present form." He had a letter two days afterwards from the secretary of the Royal College, which was as follows:—"I hasten to acknowledge receipt of your letter, and to inform you that I at once sent the same to the President for consideration." He had also received a letter from the solicitor, saying, "The President has sent me your communication, and asked me to attend to

it and report to the parliamentary committee, which meets on the 2nd instant. If I find it necessary to take any active step before then, I will not hesitate to do so."

(*To be continued.*)

## THE LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The 35th annual meeting and dinner of the Lancashire Veterinary Medical Association was held at the Grand Hotel, Manchester, on Friday, February 12, 1897. Business, 4.30 p.m.; dinner, 6 p.m. J. H. Carter, Esq., presided, and the following members were present:—Messrs. H. B. Allen, H. Hall, Geo. Howe, Prof. W. O. Williams, S. Locke, J. B. Wolstenholme, H. D. Chorlton (hon. sec.), and Mr. O. G. Barrow, visitor.

The last meeting's minutes were taken as read, on the motion of Mr. SAML. LOCKE, seconded by Mr. H. HALL.

Letters from Professors Young, Owen's College; McCall, Glasgow; Macfadyean, and Dr. Delepine, expressing inability to attend, were laid upon the table.

A communication from Mr. Blackhurst, of Preston, tendering his resignation and enclosing cheque in payment of arrears of subscriptions, was received.

The SECRETARY having read a letter from the Yorkshire Society, which was approved, Mr. WOLSTENHOLME moved, and Mr. SAML. LOCKE seconded, that a suitable acknowledgment be sent to it.

Mr. LOCKE, in the absence of Mr. W. A. Taylor, proposed the election of Mr. Elvin Plant, M.R.C.V.S., as a member of the Association, and Mr. H. D. CHORLTON, by Mr. W. A. Taylor's request, seconded the proposal.

Mr. WOLSTENHOLME reported that the Society's balance at the beginning of 1896 was £37 4s. 2d., while at the end of the year it was £57 7s. 3d., and that the arrears were less.

Mr. SAML. LOCKE nominated his son, Mr. George Harry Locke, M.R.C.V.S., for membership. Mr. WOLSTENHOLME seconded.

This terminated the business of the evening, and dinner was served.

The PRESIDENT proposed the toast of the Queen, referring to the great event of interest to all who lived beneath the British Flag, viz., that in June this year Her Majesty would have reigned for the full term of 60 years.

He also proposed the toast of the Prince and Princess of Wales, and the rest of the Royal Family.

Mr. W. A. TAYLOR proposed the toast of the Navy, Army and Auxiliary Forces. While safeguarding our commerce and home, they kept a watchful eye on our colonies. It was, no doubt, through the splendid services rendered by them in the past that we had attained to our present position amongst nations. Though our aim was peace, it was necessary to keep those services in such efficiency that we should be able to guard our own.

Mr. MASON, in responding, said the navy was second to none in the world. His short career in the Army was in the Army Veterinary Department, and he could speak in the highest terms of this section. As to the Auxiliary Forces, he thought they would do their duty if required.

Dr. NIVEN said he considered it a great honour to propose the toast of the Royal College of Veterinary Surgeons. It was an excellent thing that there should be one Royal College which exercised sway over the morals of the whole profession. It fixed, as it were, the attention of every man upon one particular body which showed no partialities. The great function of the Council was, he supposed, the function of examining—that it appointed the examiners, and laid down the subjects to be taught in the veterinary schools, as well as the standard of education veterinary surgeons must follow, and it was a matter of much congratulation that the Council had seen its way to

exact such a high standard of preliminary education from veterinary students. Assuredly, it must add very much to the dignity and scientific efficiency of a veterinary surgeon that he should have a high standard as a gentleman and a scholar before entering upon the more special parts of his veterinary study. In all bodies the *esprit de corps* was a powerful means of stimulating mental effort, and he thought that the effort of the R.C.V.S. to raise the standard of education, must have a profound effect in raising the whole standard of veterinary education and of veterinary standing.

Mr. R. C. TRIGGER: With considerable pride and much pleasure I respond to the toast of the Royal College of Veterinary Surgeons submitted by Dr. Niven, and thank him for the kind and eulogistic terms in which he has spoken of our profession. I am always pleased to attend the meetings of the Lancashire Association because I am sure of a hearty welcome and meet with many leading lights of the profession. I look around this table I may say with a feeling of regret because I miss the familiar faces of Mr. Greaves, Mr. Peter Taylor and others who have passed from us, and although their places are vacant their names will live daily in the profession.

There has been a good deal of criticism in the press about the registration committee. I do not think the outside public should be furnished with the correspondence. Of many cases you would hear nothing more because the moment we send a letter to the gentlemen whose conduct is impugned and get an undertaking from them to discontinue, we take this as sufficient and in these circumstances it would be very vindictive to publish the correspondence, There are scores of those cases. On the other hand there are cases in which no evidence is sent. We get cases where an offence has undoubtedly been committed, but on looking into them there is no evidence to work upon. You cannot push these cases, but I can assure you that in every case where there is a little evidence we do proceed with it, and we have the members of the profession before us for breach of professional etiquette, and so on. After the last council meeting there were two very grave errors in the reports which should have been corrected. As a matter of fact I do not know why they were not corrected by our secretary, as a letter was drafted.

Another grave mistake appeared on the same day in the same report, the report of the registration committee. It was an observation to the effect that the Council recommended the restoration of Mr. Howard's name to the register, it having been struck off. It was a misprint. Howard had been struck off and he appealed. The Privy Council sent to us for our reasons. The answer sent by our Council to the Privy Council was that we were quite satisfied with our procedure and should maintain it. It so happened that on the same day a man named Power was recommended to be restored to the register. The journals, however, unfortunately got the name of Howard in in place of Power. I am impressing this upon you because it is a very important matter. I am now in a position to say that the solicitor has written that the Privy Council rejected the appeal of Howard and confirmed the opinion of the Royal College. This is most important. The Privy Council have decided that the Royal College are the tribunal to deal with what is and what is not professional conduct. "Electoral districts." That is very well in theory, but I do not see it in practice for this reason:—I quite agree and I quite think that every district should be represented on Council, but I have been on the Council now for some years. I have seen that these different districts have been represented, but they do not remain represented. I imagine on account of the great distances the gentlemen have to come to London they do not like to do it. You cannot get representatives to attend regularly from long distances. As a Midland representative and a provincial practitioner I quite agree, and am first to recognise that the various districts should be represented on the Council, but we hear

a great deal about other things being left too much to the London men. You know the enormous amount of work to be done in committee. You could not get the work of the Council done if members did not attend. The best suggestion, I think, is that a man be elected to represent a certain district, not necessarily taken out of that district, but to represent the interests of that district. Referring to Dr. Niven's observations on *post-mortems*, I think he is little aware of the extent veterinary surgeons make *post-mortems*. We have a larger animal to deal with, but we have no sentiments to contend with. At the present time the veterinary profession recognise the value of *post-mortems*, and that it is largely to the *post-mortem* examinations which have taken place, and the way in which cases have been investigated, that the rapid strides in veterinary surgery have been made in the last few years. Before concluding, I have been asked by the Midland Counties Association to announce that this day week is their annual meeting, and at that meeting Prof. MacFadyean has consented to give an address on the "Veterinary Profession: Retrospect and a Forecast." On behalf of the Midland Association I extend a cordial invitation, not only to the Lancashire Association, but to the profession. Gentlemen, I feel extremely proud to represent the Royal College of Veterinary Surgeons, and am extremely honoured to be supported by the Lancashire members of Council. I thank you for the very cordial reception you have given me.

Mr. WOLSTENHOLME: I think the toast of "The Veterinary Schools," which I have the honour to propose, is of first importance. It goes without saying that every practitioner, whether medical or veterinary, is, and of necessity must be, deeply indebted to the schools; for as the teaching of the schools is good, bad, or indifferent, the impress will be manifested in the finished article—the surgeon. There is something besides simply teaching the essentials of our art and science: there is the *esprit de corps* referred to by Dr. Niven, and unless a teaching body, at the same time as it puts into men's minds and hands the wherewithal to earn a livelihood, inculcates something higher than that, I should say that it largely fails in the proper fulfilment of its mission. I am sure you will agree with me in saying that our schools do all in their power to train the students to form a just appreciation of their duty to the profession, of the part it should play in the domain of science and in advancing the common weal. Now, it is quite possible that in the past few years the veterinary schools have not had a good time. When change is the order of the day, both as to the duration of the term which the students shall have at college and as to the whole system of examination, it must be that a considerable strain is thrown upon them in expense and anxiety to meet the new requirements. I daresay there are few men who have had opportunity to measure in any way the response which our schools have made to the new calls but who would at once freely admit the admirable manner in which they have acquitted themselves. A while ago we read in our journals some remarks which seemed rather to go against the grain. One of them was, that there were those who questioned whether the veterinary student of the present day was so good a man as he of twenty years ago. I do not know what qualifications they may have to judge; but for myself I am certain that the student of to-day is far in advance of the student of twenty years ago. Again, something is said that these students can pass with credit in the first examination, and so on in a declining ratio until they come to their final examination, when the degree of credit vanishes altogether, and by implication the burden of this is thrown upon the examiners. I do not think it is fair to put it in this way if we look at the conditions. I rather think that now there is not that great distinction drawn between the "practical" and the "unpractical" man as there was in times past. When I was at college the unpractical man was

simply tabooed. The chief effort was concentrated on things practical. But with a four years' curriculum, and with written, as well as oral, examinations; is it to be wondered at that more attention is directed to the earlier courses of the students? Is it to be wondered at that when the student comes up to the final examination he is not quite so proficient as he may be in botany or chemistry? It can hardly be expected that he can shine so sublimely in the practical when so much of his attention has been directed to the earlier examinations. Again, is this a thing to be regretted? No, it is a thing to be thankful for in this sense—that after a man leaves college he has little opportunity of advancing his knowledge with the earlier studies of his professional career. When he qualifies he commences the practical duties in which he will improve and develop as time goes on, and thus, instead of it being a reflection either upon the schools or upon the examiners, I think it should be looked upon as almost a necessary result of the altered conditions. There are some things in the profession of which veterinary surgeons ought to be profoundly thankful and not a little proud of. We have one entrance examination and one board of examiners for the United Kingdom. That gives us what the medical profession does not possess; a one portal system, and not only that, but a uniform examination by the same examiners. Another thing, I do not suppose that the heads of the schools think the limit has been attained in what they at present teach, or what will eventually be taught, and I do not suppose, on the other hand, that our Council thinks it has come to the end of what it will have to do in providing servants for assisting in the preservation of the public health. I believe the time is not far distant when the veterinary profession will have to take another step, or the sister profession will take it for them. What I mean is this:—Gradually the public mind is being awakened to the value of men trained for the preservation of the public health. That is something in which this country has been exceedingly remiss. The medical profession have freely responded to the call, and have provided specially trained men for the safeguarding of the public health. Now there is a demand being made for men who shall be skilled in the knowledge of diseases communicable from animals to man, in the knowledge of the inspection of meat, in the knowledge of milk; how it may be withdrawn and passed on to the customer in the best possible condition and free from disease-producing constituents. The veterinary surgeon, by his special training, is highly qualified to assist the medical officer of health in this consummation, but as it is not possible that every veterinary surgeon, on emerging from college, shall be specially prepared and equipped for that particular service, I rather think that ere long a condition will arise in which it will be necessary that public bodies shall be able with facility to discern who amongst us are suitable, and that our own corporate body will have to offer a special diploma to post graduates similar to that of public health in the sister profession; otherwise the universities will provide such an examination, the passing of which will stamp a man as being fully qualified for the duties I have indicated. The schools are admirably trying to work up to the standard which has been set, and I have great pleasure, gentlemen, in asking you to drink to them, coupled with the name of Professor W. O. Williams.

Professor W. O. WILLIAMS, in responding, thanked them most heartily on behalf of the schools, for the kind way in which they proposed their prosperity. Generally—he could not speak specially—the schools were finding times extremely hard. The Royal College of Veterinary Surgeons, by its imposition of a four years' course upon the students, had made it almost impossible for the schools to teach all the required subjects for the fee paid by the students, and to leave a margin of profit. He thought the R.C.V.S. should do as the universities did; for instance, a man might qualify as L.R.C.P.S., at a fee of

from two to three guineas per class, but he could not obtain a university degree unless he paid a fee of four guineas per class. The R.C.V.S. might do like the universities and make a minimum fee to be paid for the student, and so assist the colleges a little in being able to pay their way. It was a serious thing to teach four years for 60 guineas. He was glad Mr. Wolstenholme brought up the question of the public health, because the Public Health Bill, which was brought before Parliament last year, had been again introduced with the objectionable clauses still in. Of course, the profession would have to take precautions this year to have them expunged.

Mr. DACRE, in submitting the toast of the President, paid an excellent tribute to his conduct in the chair during the past year. Under his control the Society's meetings had been extremely useful and interesting, and he hoped the members would support the President in the present year.

The PRESIDENT thanked Mr. Dacre for the very kind manner in which he had spoken about him, and he was highly gratified to know that during the past year his services had been appreciated. He hoped this year would be as prosperous.

Mr. FAULKNER: Mr. President, Vice-President, and Gentlemen, I would very much have liked if this most important toast of "The Board of Examiners" had fallen into hands that could have done justice to it. I feel somewhat incapable of giving that amount of importance to it that it so well merits; however, I am sure whatever is lacking on my part in submitting the toast for your acceptance will be made up by the enthusiastic manner in which you will receive it. It goes without saying that the position of examiner is one of very great honour, grave responsibility, and at certain times by no means a bed of roses. Those of us with experience, who watch the progress of our profession and the matters which are very much in evidence at different times, know full well that occasionally there is an amount of criticism hurled at examiners justifying my remarks that at those times the position of examiner is by no means a bed of roses, and when we consider the various interests concerned in connection with the position it is easy to understand. There is, first of all, the relationship of the Board of Examiners to the Council of the Royal College who are representative of the profession, and who have in their hands the appointment of the examiners. Then we have the connection between the examiners and the schools, and beyond that the relationship with the profession, and last, but by no means least, the matter of the students, their parents, and their guardians, as concerned in connection with the administrative work which is carried on by the Board of Examiners; but I am happy to be able to say that, so far as I know, at the present time it is evident that our Board of Examiners are carrying out their duties in an eminently satisfactory manner; because there seems to be no particular agitation on the professional horizon as regards the work done by the examiners in guarding efficiently and justly the portals to our profession. With these few remarks I ask you to drink most heartily to the toast of the Board of Examiners, coupling with it the names of the gentlemen present representing that body. Amongst them is Mr. Olver, who is well known throughout the profession, and particularly in Lancashire, a gentlemen whose professional career the younger members of our profession might with advantage emulate. That he has been elected more than once to the Board of Examiners is an indication that he is satisfactorily carrying out his duties. Then we have our two members, Messrs. Woods and Wolstenholme, who have also been elected on more than one occasion, and who are now Examiners for the Royal College of Veterinary Surgeons. They have justly won the position, and we are proud to have them as members of our Association and on the Examining Board of the Royal College.

Mr. OLVER thanked Mr. Faulkner for the kind terms in which he had proposed the toast of the Board of Examiners, and agreed with him that their duties were onerous, responsible to a degree, and by no means a bed of roses. It was more than satisfactory to know that in the eyes of the Council they were doing their duty, which was, to a very large extent, to act as between the teaching schools, the profession, the public, and the students. They were appointed by the Council, and were not allowed to use sentiment as they had been students. It was generally thought that examiners were hard men, but he could assure them that this was not the case. Their object was that students showing sufficient ability should pass; but, if in their opinion they were not efficient, it was their duty to refer them back to their studies until they were. He again thanked the members for the honour they had conferred upon him in receiving him. It was always a pleasure, although not a very frequent one to visit the Lancashire meetings, and personally he and other examiners could assure them that their one object in view was to impart substantial justice to the students, and to hold the balance level as between the schools and the profession.

Mr. WM. WOODS, of Wigan, thanked them for the way in which they had responded to the call of Mr. Faulkner. He had one remark to make about the next examination taking place under the four years' scheme, and he wanted to make it to all whom it may concern. It had been relegated to them to take in hand the examination with regard to the inspection of meat, and he wished to announce that, so far as he was concerned, and he spoke for his colleagues also, that the examination in meat inspection would be a searching one which would have to be considered by the students.

Mr. SAML. LOCKE, in Mr. Lawson's absence, proposed the toast of the "Visitors." They had some very illustrious visitors this evening: Dr. Niven, Mr. Olver, Mr. Trigger (president of R.C.V.S.), Mr. Whitehead (president of the Yorkshire V.M.A.), and several other gentlemen. He was sorry that they had not so many medical gentlemen as they wished, but he was pleased to say that the connection between the veterinary and the medical professions in this city was of the closest.

Mr. TRIGGER, Dr. NIVEN, Mr. GEO. WHITEHEAD, and Mr. F. P. CARTER responded.

Mr. MICHAELIS proposed the toast of the "Ladies," which was acknowledged by Mr. GRIMSHAW.

## BORDER COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the Border Counties Veterinary Medical Association was held at the Bush Hotel, Carlisle, on Friday, 12th instant. There were present—Mr. Garnett, Windermere; Mr. H. Thompson, Aspatria; Mr. Hewson, and Mr. McKie, Carlisle; Mr. Anderson, Hexham; Mr. Lindsay, Dumfries; and Mr. Howe, Keswick.

Mr. THOMPSON said he was sorry to see so poor an attendance. Mr. Garnett was to be installed President at the meeting, and he would ask him to take the chair now, in the absence of Mr. Armstrong, the retiring President. Mr. Garnett accordingly did so.

Mr. HEWSON said there were letters of apology from several members—including Professor McCall, Glasgow; Professor Williams, and Professor Dewar, Edinburgh.

Mr. THOMPSON said there was at present a large amount of interest in the subject of tuberculosis. There had been three Royal Commissions, and it was really remarkable that the veterinary profession was only represented by one man, while medical men and laymen, agriculturists, and all kinds of people were taking upon themselves to make reports and read papers with reference

to tuberculosis. It was a well known fact that during the time when rinderpest, pleuro-pneumonia, and other contagious diseases were rife, there was as much humbug as there was at the present time with regard to tuberculosis by all sorts and conditions of men. Veterinary surgeons knew certain symptoms of tuberculosis which were not known to the medical profession or to the agriculturists—and it was a great insult to the profession that they should be ignored, seeing the prominent part that Nocard, the great French veterinarian, and Bang, of Copenhagen, had taken in bringing the matter to the front. He saw that on the present Royal Commission there were two doctors and Professor Brown, and the rest were town clerks, &c., who were enquiring into the matter of tuberculosis. If it was so dangerous as experts said it was why had it not been scheduled before—seeing that Professor Brown had been veterinary adviser to the Board of Agriculture for many years. He could not see why anthrax should be scheduled, and tuberculosis not; his opinion was that anthrax was neither contagious nor infectious, nor was it spread by cohabitation. It was inoculative, he admitted. Taking the record of cases given by the Board of Agriculture or the Royal Society, they did not average more than 1½ or 2 an outbreak. He thought that all veterinary societies in England, Scotland, and Ireland ought to make tuberculosis a set subject and discuss it thoroughly; also that a herd should be selected in every county in which twenty or thirty cattle should be inoculated with tuberculin; then wait a month, and inoculate again; then wait another month and have the reacting animals slaughtered, and see whether tuberculin was a proper diagnostic agent. His object is giving a paper before the Cumberland and Westmorland Chamber of Agriculture was solely to try and get up some interest in agricultural circles, in order that the subject might be taken up by veterinary surgeons and do away with lay people. Why should medical men ignore the veterinary profession as Sir James Sawyer had done. He was beside himself altogether when he gave his paper at Birmingham, and wished the medical profession to join with the landowners, farmers and farm labourers in trying to find out what tuberculosis was. It was one of the biggest insults that had been offered to the veterinary profession. After what they had done in stamping out contagious disease in the past, they could very soon give a good account of tuberculosis.

The PRESIDENT said this question was one of the most important they had to consider, and unless veterinary surgeons took their stand now they would, he was afraid, be for ever ignored. There was no professional man in England who had so severe a training to go through as had a veterinary surgeon before he became qualified; and he was the only man who should be called upon to stamp out tuberculosis and all infectious diseases common to domestic animals, and to discharge the office now held by sanitary inspectors, not only with regard to cowsheds, but also with regard to the inspection of every carcase slaughtered for human consumption. Those who held the positions to which he referred at present were incompetent when they took them up. There were no examinations, the Sanitary Institute members excepted. There they had a small curriculum in the inspection of meat, but it amounted to little. They were ignorant people, as regarded the diseases of animals; they knew nothing of pathology or infectious diseases, and they had no knowledge of examining carcases. The disease of consumption was a most important subject; and as regarded tuberculin, he did not think that there could be two opinions as to the results. It had been proved in England, and on the Continent, and was almost universally used in the States of America; and the conclusions of all who had used it were much the same,—that it was, at present, the most reliable diagnostic agent there was for testing tuberculosis. Some representation on this point ought certainly to be laid before the Royal Commission. As to the men who sat on the Commission, the less said about them the better. The veterinary surgeons were only re-

presented by one man, Prof. Brown, whereas the profession ought to be represented by veterinary surgeons and a medical man. The medical men were, however, given the preponderance in this disease, but although it might be a subject which affected them to a certain degree, all legislation which was likely to follow would have to be placed in the hands of veterinary surgeons, and it was only through them that any legislation in tuberculosis in cattle could be carried out.

Mr. HEWSON said the meeting should pass a resolution, and issue circulars to other societies, that tuberculosis should be included in the Contagious Diseases (Animals) Act—almost, he might say, in place of anthrax. He agreed that anthrax was neither infectious nor contagious, or to a very slight extent contagious.

This was agreed to.

Mr. THOMPSON asked if any member could give him direct evidence that the milk of tuberculous cows had produced the disease in the human subject?

Mr. HOWE said he had been thirty or forty years among cattle, and he had seen cows that were thoroughly bad from tuberculosis; they had bred stock and given milk which was sold, and he had never heard tell of any ill results. It was a question which could not easily be answered. He mentioned the case of a cow which was walking about rotten, and was sold for 10s. 6d. in the auction mart. Her milk was sold to an hotel, and he had never heard of any disease or illness arising. He did not think tuberculosis was so prevalent now as it was twenty years ago.

Mr. THOMPSON said it was dying out in his district. There was now only one case where there were eight formerly.

Mr. HOWE also mentioned the case of a cow, very far gone in the disease, which had bred an entire stock of healthy bullocks.

Mr. LINDSAY said his own experience led him not to put too much faith in the tuberculin test. He had tested animals that he had known to be bred from tuberculous cows and tuberculous bulls, and he had never got them to react, though he tested them as yearlings, and, again, as two-year olds. No doubt, the germs were present in the cattle.

Mr. THOMPSON: We will have to doubt that unless we believe in latency.

The PRESIDENT said he had seen the tubercular bacillus in the milk of a cow which had a knotty udder. That was a fact beyond all contest. As a precaution to everyone in his house, he insisted upon having every drop of milk boiled, and not only boiled once, but if kept twelve hours, boiled a second time. He was thoroughly convinced that the bacillus could be and was in certain cases communicated to man, and especially to babies, through the milk of cattle with diseased udders.

Mr. THOMPSON said he did not doubt that Mr. Garnett had seen the bacilli; but had he ever known a case of consumption in the human subject being caused by milk from a tubercular cow when the udder was not affected.

The PRESIDENT said he could only answer that indirectly. All such milk given to guinea pigs and other animals caused the disease, and they could not ignore the fact that it was likely to have the same effect upon children.

Mr. LINDSAY said if the milk was given to men or women, he did not believe they would contract the disease; but it was different with children, who in after years might suffer from tuberculosis because the gastric juice was not of sufficient strength to kill the bacilli.

Mr. THOMPSON said he could not doubt for one moment that tuberculous milk might cause consumption in the human subject, but it must be in those who had a predisposition to the complaint. There must be fruitful soil for the seed to develop. It was curious that tuberculosis was not so common

in children when they were mainly fed on milk. It occurred sometimes as tubercular meningitis, in children seven or eight years of age, and also as tabies mesenterica; but statistics showed that in England only 19 per cent. of those who died of consumption were under 15 years and above 55, while 81 per cent. died at middle age when living on other foods than milk. This was very remarkable.

Mr. HEWSON: You don't believe in the transmission of the disease from animals to human beings? If so, in what way is it transmitted if not through the milk?

Mr. THOMPSON: Where did you find that I do not believe it is transmitted to human beings?

Mr. HEWSON: From your question. It is a question which none of us can answer. No practical veterinary surgeon ever had the opportunity of speaking positively on such a point. The main point is still wanting. How are you to prove that the disease did not come from some other source? I maintain that your question is unanswerable, and I would like to know what you consider the commonest means of transmission from animals to man.

Mr. THOMPSON said it was alleged by medical men that milk was a great vehicle for conveying the disease; what is wanted was direct evidence, not assumption or hearsay, that milk was as bad as represented. In his opinion this would only be arrived at by the combination of veterinary surgeons and medical men, the former to detect the malady in the cattle and the latter to trace the cause to the milk from the diseased animals.

Mr. LINDSAY: Do you believe in stamping out tuberculous cows?

Mr. THOMPSON: No, not exactly; the flesh of those animals that were in good condition and the disease localised in the lungs or digestive organs might be used for food, as there was no evidence that flesh from such-like animals had even caused the disease: but piners and wasters should certainly be destroyed. He mentioned a town in Cumberland where, he said, a frightful quantity of diseased meat was eaten, yet Dr. Barnes, Carlisle, in his report to the county council, showed this town had the lowest rate from phthisis of any town in the country.

The PRESIDENT mentioned the receipt of a circular from the Royal College of Veterinary Surgeons, with regard to the Public Health (Scotland) Bill. It was agreed to write to the proper authorities pointing out the absurdity of appointing medical men to inspect cattle, either dead or alive.

On the motion of Mr. THOMPSON, a vote of thanks was accorded to Mr. Hewson for his services as secretary. The post has now been taken over by the treasurer, Mr. Thompson.

The PRESIDENT then gave his

### *Presidential Address.*

GENTLEMEN,—Many times since you elected me as your President for the present year have I felt that I should but inadequately fulfil the position, and it was only by having the knowledge that you would one and all stand by, and assist me in my endeavour to uphold the Border Counties Veterinary Medical Association in the position it has held in the past, that induced me to accept it. In reviewing the past it is hard to hide from oneself the tones of pessimism apparent throughout our profession, shewing itself now in one place and again in another, making itself manifest by old members and young alike, as is evidenced too well by the press, which devotes itself to our interests.

To shut our eyes to this fact is simply to ignore the sores beneath the saddle and endeavour in our optimism to imagine they are non-existent.

Perhaps the oldest of the sores is the one I would draw your attention to first—the position which country members hold on the council and the mode of electing members to the same body. It is difficult to understand that there

should be any opposition to electorial divisions and the payment to members of their expenses to and from the meetings. We have already to much centralisation : a little decentralisation would be healthier and more in accordance with the times,—our elections being fought under similar conditions to those which govern the Imperial Parliament.

I would ask how many Southern County and Metropolitan members would find it convenient to attend the meetings of council if they were held in Edinburgh or Glasgow.

I know that this change would necessitate an appeal to Parliament, because the treatment in this case is severe, it is none the less necessary. Sooner or later we shall learn that the treatment applies to ourselves which we often have to offer to our clients, whose only answer is that our advice is impossible to carry out, on account of the expense which it entails.

The voice of the student is being constantly heard and his cry must needs have attention. The uncertainty of his existence is such that he does not know what the next day will bring him or what examination and rules he may have to face before he completes his course of study. On educational matters our council turns as a vane, action and reaction following in quick succession. Is it not time that the breezes which blow at one meeting from Camden Town, at the next from Edinburgh, and at the third from Glasgow, should find our weathercock rusted up, or in other words find that the council is master of the school and has fixed the examinations, the subjects of the examinations and the rules which govern them for a certain definite period, let the wind blow from whatever quarter it will.

The cure of that sore disease in the side of the veterinary profession—the empiric or quack—is a question the alleviation of which lies entirely with ourselves.

I am convinced that we shall feel it less and less as we take our stand on the scientific training we have had and base the treatment of our patients on the close observation of the symptoms of the disease in the first place and by prescribing medicines applicable to the symptoms we have discovered in the second place. This in contradistinction to the quack who administers his medicine without a knowledge of the disease he is treating or whether the drug he is using is applicable. So long, though, as veterinary surgeons empiricise (if I may coin the word) the profession by keeping stock medicines and administer them right and left, a colic draught for one, a bottle of pink lotion for another, a blue or a white ball as the case may be—is it to be wondered at that the public find it difficult to distinguish between the qualified and the unqualified? Indeed, it would be strange if the empiric did not step in. To the thoughtless public one blue ball is similar to another and the charge of the quack not half!

Closely allied to the last mentioned sore, and, to a certain extent, consequent upon it, is the position the veterinary profession holds under the Board of Agriculture and all public corporations and authorities.

The time has now arrived when we must assert ourselves, and take upon our shoulders all the responsibility of securing the public from infectious diseases of animals communicable to man, and all such sanitary work as the inspection of cowsheds and the carcase of every animal slaughtered for human consumption. We, as a profession, have been either too bashful of our trained capabilities or have been so indifferent to the progress of time and the growth of public opinion on all matters affecting health, that we have made openings for untrained men, medical and others, who have not been slow to avail themselves of our own inertia, and obtained the post that we alone are fitted to hold.

This, then, is the most important work which we have to face in the immediate future—the one which I trust you will bear most in mind, and endeavour

by every means in your power to help on, at least to a slight extent, during the present year.

A Royal Commission is now sitting on Agriculture, and it is only a sign of the times that no veterinary surgeon has been called to give evidence before it. This is a question which our Council might take up, and the evidence which our President could give the Commission would show the great benefits which might accrue to agriculture by the rational employment of veterinary science.

It is only by grappling with such facts as I have brought before you that we can rid ourselves of the pessimism which sometimes overshadows us.

The veterinary profession is a growth of such rapid and sturdy progress that the resistance which surrounds it in every direction at the present time is a sure sign of its health and development, and none can doubt but that, in the end, it will triumph.

Mr. THOMPSON moved a vote of thanks to the President for his address, and it was agreed to with applause.

The PRESIDENT said he had a few remarks to make, which he did reluctantly, on the carrying out of anthrax regulations in Westmorland. He had had many cases during the past twelve months, and in consequence of the action of the authorities he was compelled in his own interest, and in the interests of his clients, to protest against it. In that day's paper he saw the recommendations of the County Council, and they were very amusing. It would throw a little light upon the tinkering which our great representatives of the authorities, the police, were induced to carry out, ignoring all local effort, no matter what it might be. In the reports of committees, he read that "the Diseases of Animals' Executive Committee reported upon four cases of anthrax which had occurred in the district since the last ordinary meeting of the committee. It was resolved that the veterinary inspectors be restricted not to cut into the carcase of an animal suspected of having died of anthrax. In a case of great doubt two veterinary inspectors might be called in to act in consultation, in which case they should have liberty to cut into the carcase with the view of a more full and complete examination." So that, having found the bacilli, if more conclusive proof was wanted they must cut into the carcase. In the particular case of which he complained, he had an ear of the animal cut off, and the germs were found. He showed them to the inspector—there was only one for the county—and he ignored them and got an order to open into the carcase.

Mr. THOMPSON said there was a different system in Cumberland with regard to inspectors. Every veterinary surgeon was an inspector in his own district.

The PRESIDENT said he telegraphed to the police that he certified the case to be anthrax, but they would not accept that, because he was not an inspector for the county. He was an inspector in Lancashire.

Some discussion took place with reference to anthrax.

Mr. THOMPSON asked Mr. Garnett what he thought induced the disease?

The PRESIDENT said he thought it was the spores which got into the grass, hay, or feeding stuffs. It was not directly infectious from one animal to another.

Mr. THOMPSON: Not by cohabitation?

The PRESIDENT: No, it is like rot in sheep.

Mr. THOMPSON: Suppose you have half a dozen, one after another, and all in the same byre?

The PRESIDENT: I should think it was from the feed in some way.

Mr. THOMPSON said he believed the spores were really the cause of the complaint, but he believed also that the body was rendered prone from some peculiarity in the feed. He did not believe it was spread by inhalation. He added that they were yet as "green" on the subject of anthrax as they were on that of tuberculosis

Mr. LINDSAY mentioned a case of anthrax in a cow which survived for four days.

It was decided on the suggestion of the PRESIDENT to hold the next meeting of the Association at the Old England Hotel, Bowness-on-Windermere.

The PRESIDENT then notified his intention of entertaining the members and friends to dinner, this was received with great applause.

The annual meeting was afterwards held, and what they lacked in number was made up with conviviality and enjoyment.

## LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

THE fifteenth annual meeting was held at the Angel Hotel, Grantham, on Thursday, March 11th, when there were present Mr. H. Howse, Lincoln, President; Professor Penberthy and Mr. F. W. Wragg, London; A. W. Mason, Leeds; W. H. Allott, Upwell; W. H. Brooks, Leadenham; W. G. B. Dickinson, Boston; H. B. Eve, Caistor; F. L. Gooch and J. E. Shacklock, Stamford; R. T. Hardy, Sleaford; T. Holmes, Bourne; G. W. Osborne, Fulstow; T. A. Rudkin and E. C. Russell, Grantham; Jas. Smith, Huntingdon; and J. A. Robinson, Hon. Sec., Peterboro'. Dr. Freer, Grantham, and Mr. Norgate, Retford, were present as visitors. At the commencement of the meeting, pending the arrival of the President, the chair was taken by Mr. T. Rudkin, Vice-President.

The minutes of the last meeting having been taken as read, apologies for non-attendance were read from Dr. Fleming, Professors Williams, W. O. Williams, Macqueen, and Pritchard, and Messrs. Reeks, J. A. Clarke, R. W. Clarke, Freer, Hartley, Kidd and Truman.

### *The Public Health (Scotland) Bill.*

The SECRETARY said he had received a communication from the President, R.C.V.S., on the subject of the Public Health (Scotland) Bill, but as he believed every member of the profession had had a similar circular he did not know whether it was necessary to read it to the Society unless the members wished it.

Mr. DICKINSON said he thought it was highly necessary for the members of this and every other Society to use their influence with their members of Parliament in their different districts and to see that their views were properly presented to the House of Commons. He had seen three M.P.'s himself respecting the Bill and he thought it was their duty to see that the profession received proper consideration on the question.

Mr. A. W. MASON said the Yorkshire Society were having a special meeting for a full discussion on the subject, and they hoped to persuade their members to draw up a circular to be issued to the Yorkshire Members of Parliament.

Mr. ROBINSON said the circular appeared to be addressed more to individual members than to the Society collectively.

Mr. JAS. SMITH said that with all due respect to the members present, he certainly thought they might each of them do more good by personally impressing upon their own M.P.'s their objections to the Bill. He had already sent a communication to Mr. Smith-Barry, M.P., who represented the division he lived in.

Mr. DICKINSON said they would be very pleased to know the result of the Yorkshire Society's meeting, as it might be a guide to them.

Professor PENBERTHY said he happened to be a member of the committee which issued this circular, and he might say that each Member of the House of Commons had been written to individually by the Secretary, R.C.V.S. They had the details in their own hands, but the feeling of the Council was that any influence that was at the disposal of any member of the

profession should be exercised upon M.P.'s in order to draw their attention to the anomalies that existed in this Bill, and to ensure their support of the views of the profession. Veterinary surgeons were specially educated to deal with the diseases of animals during life, and the cases referred to in the Bill should not be taken out of their hands and relegated to medical men, who could have no knowledge on the subject. Attention should be drawn to their special education in the matter of meat inspection and the inspection of dairies. Before they received the circular every member of Parliament had been written to, but it was felt that wherever any individual member of the profession would assist it would be of material aid to the Council. The Bill was to have come on for second reading on Wednesday, but the principal opposition could be brought in Committee, where lay their chief hope of attacking it. He reminded them that this Bill was attempted last year, but was thrown out owing to strong opposition, so that the present Bill was called The Public Health (Scotland) Bill, No. 2.

If anything was to be done successfully they must take action at once. He did not think, however, that the Bill had the slightest chance of passing unless those clauses were altered and they could only be altered in their favour.

The HON. SECRETARY asked if he should write to all M.P.'s within the district of the Association, or leave the matter to their members individually.

Mr. WRAGG proposed that it should be left in the hands of the President and Secretary to take what steps they considered best in the matter, and this was adopted.

*The Accounts.*

Captain RUSSELL wrote from Brighton expressing his regret at absence through illness. He gave an account as Hon. Treasurer of their financial transactions for the past year, showing a satisfactory balance in hand, and referred to several members of the Society whose subscriptions were much overdue, requesting the directions of the meeting with regard to them.

The HON. SECRETARY proposed that the accounts be passed with a very hearty vote of thanks to Captain Russell for the care and energy he had bestowed upon the affairs of the Society, all the members of which, he was sure, wished that Captain Russell might soon be restored to health and be amongst them again. He thought the question of subscriptions of members in arrears had better be left till the Treasurer was able to attend the next meeting.

Mr. WRAGG seconded, and the resolution was adopted unanimously.

*Election of Officers.*

Mr. JAS. SMITH proposed the election of Mr. Robinson as president for the ensuing year. He said that Mr. Robinson had acted as Secretary for the past four years. He had no doubt that he would perform the duties of president with as much satisfaction to the members of the Society as he had done those of his present office.

Mr. ROBINSON said it was impossible for him to accept the honour they wished to confer on him, but at the same time he thanked them very much.

Mr. GOOCH proposed the election of Mr. F. W. Wragg as president for the ensuing year. He said that Mr. Wragg was one of the most eminent members of the profession at the present time, and had on different occasions occupied the chairs of various societies with great success. He was sure that if he would honour them by accepting the presidency of that Society they would all do their utmost to render his year of office as enjoyable as possible, and would give him their enthusiastic support.

Mr. JAS. SMITH seconded the nomination.

Mr. WRAGG said that he felt very much the honour they proposed to confer upon him. From private reasons he should prefer not to accept the office

this year, as he was very much occupied by duties in the City. But if it was their unanimous wish he would do his best to carry out their wishes. He hoped that their meetings would be as well attended in the future as those he had been present at in the past year.

The election of Mr. Wragg was carried by acclamation.

The retiring PRESIDENT, Mr. H. Howse, Lincoln; Mr. H. Kidd, Melton-Mowbray; and Mr. Thomas Holmes, Bourne; were elected Vice-Presidents.

Mr. RUDKIN moved, and Mr. GOOCH seconded the re-election of Captain Russell as Treasurer. This was carried unanimously, with a hearty vote of thanks for his past services.

Mr. WRAGG proposed the re-election of Mr. Robinson as Hon. Secretary, saying that he had done his work in so splendid a manner that it required no words to commend the proposition.

Mr. ROBINSON said he very much regretted that he was unable to again accept the office.

Mr. DICKINSON proposed and Mr. SHACKLOCK seconded the election of Mr. E. C. Russell as Hon. Secretary. This was supported by Mr. RUDKIN, and carried unanimously.

Mr. RUSSELL thanked the members for the honour they had given him. He would always do his best in the interest of the Society. He hoped that its affairs would go on as well in the future as they had done with their present Secretary.

*New Members.*

Mr. HARDY proposed and Mr. ROBINSON seconded the election of Mr. T. W. Turner, of Sleaford, as a new member.

Mr. ROBINSON proposed and Mr. E. C. RUSSELL seconded the election of Mr. Volgate, of Retford. Both gentlemen were elected *nem. con.*

(*To be continued.*)

## WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

THE annual general meeting was held within the Religious Institution Rooms, Buchanan Street, Glasgow, on Wednesday, 10th February, 1897. Dr. James M'Call, President of the Association, in the chair.

After the SECRETARY had read the minutes of last meeting, and also the financial statement, both of which were approved of,

The CHAIRMAN said the Association, as you see, is still solvent. I hope this year we will get a considerable number of new members. By doing so we will soon increase the balance sheet and make it larger than it has been.

*Election of Officers.*

Mr. WILLIAM ANDERSON: At a recent meeting of the Business Committee of the Association it was arranged that the present office-bearers should be asked to continue in office for another year. We have only had two meetings since the appointment of the present office-bearers so that it is only right that we should ask them if they are agreeable to accept office.

The SECRETARY then read the list of the present office-bearers:—President, Dr. James M'Call; Vice-Presidents, Mr. Macfarlane, Greenock, and Mr. Peddie, Cathcart; Secretary and Treasurer, Mr. Hugh Begg.

Mr. ALLAN: I beg to second Mr. Anderson's motion. The motion was unanimously carried.

Mr. P. Blue was also elected a vice-president, and Messrs. Frew and Brownlie were elected auditors.

The CHAIRMAN: Gentlemen, speaking for myself and the other office-bearers, we will be pleased to take office again for this year, and will try and

carry on the work which we have been engaged in. We have had a considerable amount to do, but at the same time we were quite well able to get over it and I think that at the end of this year we should be in a very good position for getting on a number of new office-bearers, because the old story about new blood will come in then, and probably at the next meeting we will get a completely new list.

The next item in the business is to submit the revised rules of the Association. In regard to these rules a sub-committee was appointed, and we have gone over the old rules very carefully and have deleted some of them in part and added some things which seemed to us to be advantageous to the Association. To-day we have copies of these new rules, and the sub-committee will be very pleased if each member will take a copy of them and read them over carefully. If there is anything that might be improved I am sure that at the next meeting we shall be ready to consider these proposed alterations and take them in hand.

*New Members.*

As this is the first gathering for this year, we would like to get as many new members as we possibly can, and I have much pleasure in asking you to bring before us the names of gentlemen, members of the profession, whom you think it would be advisable to have as members of our Association. I will start by proposing that Mr. John Brown, a member of the Royal College, be elected a member of this Association.

Mr. ANDERSON: I beg to second that.

The following gentlemen were also proposed and seconded:—Mr. John M'Neil, Greenock: Mr. Robert Miller, Strathaven: and Mr. James Nisbet, Galston.

(*To be continued.*)

---

## TO THE PROFESSION.

GENTLEMEN,—Having been nominated as a Candidate for Election of Members of Council, I take an early opportunity of stating my views.

I am in favour of progress, and desire to see the general practitioner's interests advanced and safeguarded, and would take as my motto, "The greatest good of the greatest number."

A very close association for many years with some of our most successful reformers has afforded me the advantage of clearly understanding the methods of procedure in the Council Chamber. Although a countryman in close sympathy with the general practitioner, I am permanently located in London (not "for some time" while awaiting marching orders), and I have special facilities for attending council meetings, should you honour me with election.

I wish to serve no small section, removed from the everyday battle for existence, and having little in common with the rank and file.

I should not favour any movement intended to suppress the conduct of useful auxiliary callings, as I see no loss of dignity in carrying on an honest business that serves the public convenience.

I deem a period of pupilage with a country practitioner essential to the proper training of the veterinary surgeon.

I desire to have defined, as clearly as possible, the form or character of advertisement which may be considered "disgraceful," etc., etc., and, further, I object to any trial *in camera*, by which a member's name may be removed from the register without the exact nature of his offence transpiring.

I am, Gentlemen,

Yours obediently,

R. C. IRVING.

## CONTAGIOUS DISEASES ANIMALS ACT, 1894 and 1896.

### Summary of Returns of Outbreaks, for the four weeks ending March 20th, 1897.

#### England and Wales.

| Pleuro-Pneumonia. | Swine Fever. | Anthrax. | Glanders (including Farcy). | Rabies. | Foot and Mouth |
|---|---|---|---|---|---|
| Outbreaks 1<br>Cattle affected 1 | Outbreaks 203<br>Slaughtered 3647 | Outbreaks 28<br>Attacked 46 | Outbreaks 47<br>Attacked 93 | Dogs 15<br>Other Animals 9<br>Destroyed 6 | None |

#### Scotland.

| | | | | | |
|---|---|---|---|---|---|
| None | Outbreaks 6<br>Slaughtered 256 | Outbreaks 9<br>Attacked 15 | Outbreaks 5<br>Attacked 18 | None | None |

#### Ireland.

| | | | | | |
|---|---|---|---|---|---|
| None | Outbreaks 47<br>Slaughtered 421 | None | None | Dogs 51<br>Other Animals 5<br>Destroyed 67 | None |

## TO THE MEMBERS OF THE PROFESSION.

Gentlemen,—I beg to offer myself to you as a candidate for election to the Council of the Royal College of Veterinary Surgeons, nominated by Veterinary-Colonel J. D. Lambert, C.B., Director-General of the Army Veterinary Department.

1. I am in favour of progress, for if the profession does not advance it will go backwards; it cannot remain stationary.

2. I am of opinion that the public now expects a high degree of education from us, but that this education must not only be theoretical but thoroughly practical, and any steps taken to bring this end about will receive my cordial support.

3. I consider that we do not receive the official recognition we are entitled to as educated professional men, in the matter of exemption from service on juries, proper fees being paid for expert evidence, meat inspectorships, and inspectorships under the Board of Agriculture being in the hands of laymen, together with the constitution of that Board as far as we, as the profession, are concerned.

4. I am convinced that these matters will not be set right until we have one of our profession returned as a Member of Parliament to guard our interests, and to this I consider we ought now to devote our attention.

5. Owing to the growth of the empire the profession requires protection in our colonies and dependencies, and of these I have, perhaps, a somewhat larger knowledge than most, having visited many of them.

6. Being permanently stationed in London for some time, if I have the honour of being elected, I hope to be a working member of the Council, without being a London practitioner, and, in short, I will use my best endeavours in forwarding the interests of the veterinary profession.

I am, Gentlemen, yours obediently

JOSHUA ARTHUR NUNN, F.R.C.V.S., C.I.E., D.S.O.
*Veterinary-Captain, Army Veterinary Department.*

London, *February 24th*, 1897.

## A VAPOUR INHALER.

The illustration represents an inhaler, devised by Professor Hobday, for use with patients suffering from catarrhal discharge of the nostrils such as is present in some forms of distemper, influenza, and other diseases.

It consists of a cylinder of leather having a canvas top which expands, and so fits any size of horse or dog, and a wire gauze bottom, on the lower end of which is fitted a second gauze cap for the purpose of containing a hot sponge medicated with some drug such as creosote, eucalyptus, &c.

The whole thing is fitted to the nostrils by straps. Its advantages are that it enables the steam to be thoroughly applied and carefully inhaled without fear of scalding, and with the least possible objection on the part of the sick animal. Being made of material which is able to be disinfected it can be readily cleansed each time after use.

The inhaler is made by MESSRS. ARNOLD & SONS, WEST SMITHFIELD, in sizes suitable for the horse and dog.

ABORTION AMONG THOROUGHBRED MARES.—The epidemic of slipping foals is said to be on the increase in Kentucky, and many of the breeding farms have already lost heavily by the scourge, and there seems to be no positive means of checking the calamity. Seven of the choicest mares at the Castleton Stud of Messrs. J. R. & F. P. Keene are reported as slipping, and the studs of Jas. Galway, F. B. Harper, and C. B. Hawkins have suffered greatly from the trouble.—*Breeders' Gazette.*

## PROFESSOR KOCH ON THE RINDERPEST IN AFRICA.

### *The Production of Immunity.*

PROFESSOR KOCH has lost no time after his arrival at the Cape in getting to work to study the rinderpest. Looking at the question from the purely practical side, he has inverted his usual method of procedure, and has commenced his investigations with the object of finding out a cure for, rather than of discovering the cause of, this disease in cattle. From certain points of view this is exceedingly interesting, as he appears to be so convinced of the utility of the serum treatment in this class of disease, that he has at once tackled the serum method from two points of view. First, by producing a modified disease in certain susceptible animals, and, secondly, by taking the serum from animals that have suffered from the disease, and injecting this either alone into diseased animals, or with virulent blood into healthy animals, hoping in the one case to cut short the progress of the disease, and in the other to set up such a modified or mitigated form, that the animal will recover and be protected.

Recent telegrams are to the effect that the process of immunisation has been found to produce active immunity within a fortnight, and that Professor Koch hopes shortly to obtain immunity in a still shorter period. As a result of his observations he is convinced that rinderpest can be eradicated within a short time and with little difficulty. How far such an optimistic prophecy will be fulfilled it is, as yet, difficult to state.

### *Inoculability of the Disease.*

As regards the disease itself Koch has been able to demonstrate that the ordinary methods of infection hitherto employed by those investigating the disease are exceedingly ineffective, and that a large proportion of those cattle that it was tried to infect by means of slime from diseased animals smeared on the mucous membranes, etc., failed to contract the disease. By injecting, hypodermically, the blood from diseased animals into the "dewlap" he has been able to produce a very severe form of the disease, which has an incubation period of from three to five days, the animals succumbing and exhibiting all the *post-mortem* appearances of rinderpest. By this method every experiment has been positive.

### *Negative Evidence as to Bacteriology.*

Following up the experiments of Dr. Simpson, of Calcutta, on the presence of certain micro-organisms in the bile, he has injected these into the dewlap in the same way, with the result that he has been force to the conclusion that these organisms have no causal relation to rinderpest. He has also examined the organisms separated by Dr. Edington, and after careful experiment appears to have come to the conclusion that these are also in no way primarily related to the etiology of the disease. In fact, up to the present Koch has been able to separate no micro-organisms either from the mucous membrane or from the blood which have yet, by experiment, been proved to have any specific relation to the disease. He says on this point: "My examinations, having the discovery of the origin of rinderpest in view, will naturally be continued, but the greatest stress must be laid upon finding a process by which we are able so to attenuate the virus of rinderpest that we may use it as a preventive."

### *Modified Rinderpest.*

He finds, in connection with this part of the work, that Merino sheep and Angora and Cape goats may all contract a modified form of the disease when they are injected with rinderpest blood. From these he is able again to infect other goats and sheep, setting up similar symptoms, rise of temperature, and

the like. With this attenuated rinderpest he intends to make his experiments upon healthy cattle, and also upon antelopes, pigs, asses, mules, and dogs, in order that he may determine whether these and other animals play any part in the dissemination of the disease throughout the colony. The modification of the virus by physical and chemical means is also occupying his attention, and he will, no doubt, have interesting observations to record on this question.

*Early Diagnosis and Symptoms.*

Concerning the disease itself, Koch points out that Burdon Sanderson's observations, that the beginning of the rinderpest can be recognised by an elevation of temperature several days before other symptoms are manifest, is one of great importance, as it should enable stock breeders and holders to find out at an earlier date than hitherto when rinderpest has got into their herds. This observation seems, however, to be still more important from the etiological point of view, as it may be suggested that any organism present may, as in malarial infections, be found in the blood only during this febrile stage of the disease, and that this is one of the reasons that it has not yet been satisfactorily demonstrated. As regards the disease itself, Koch points out that the symptoms of the South African rinderpest differ in some respects from the descriptions given by other observers. He finds that the diphtheritic membranes on the mouth and palate are but slightly marked, whilst the early pathological lesions in the intestines are more prominent; in some cases bloody fibrinous casts of the walls being found in the form of "coherent masses about a yard long, which form a sausage-like complete cast of the walls of the intestines," surrounding a small canal filled with thin fluid excrement. These, if seen in the human subject, would be described as dysenteric casts, though they consist of detached epithelium embedded in a firm fibrin-like substance containing some blood.

During his short stay at the Cape Koch has been able to throw very considerable light on the subject of rinderpest, and if even a fraction of what he hopes for becomes accomplished fact, his journey will not have been fruitless, and the action of the Cape Government in inviting him out will have been more than justified.—*The British Medical Journal.*

---

## EXPERIMENTAL AND CLINICAL STUDY OF THE ASPERGILLUS FUMIGATUS.

(Contributed to the *Bulletin de la Société Centrale de Medecine Vétérinaire.*)

BY A. LUCAT.

(*Continued from page* 217.)

II.—*Experimental Researches.*

In mycology the *Aspergillus fumigatus* (Fresenius) is now placed in the class of *Mucedines*, order *Ascomycetes*, family *Perisporiaceæ*, genus *Aspergillus* of Micheli. Constantin still places it in the first group of his *simple Mucedines*, which comprise all the "*filamentous* fungi developing on the surface of living or animated matter and producing *external spores*."

Forming on the substances on which it subsists greenish, bluish, or grey tufts, according to the nature of these substances, it is essentially constituted in maturity by a *mycelium* composed of creeping, branching filaments, with thin and transparent coats unequally divided and colourless. These filaments produce on the surface of the substratum a felted stratum compact, smooth or plaited, white, yellowish, or greyish, the *thallus*, above which stretches another, more loose, in the form of down, a kind of *mycelium aëriale*. From

it shoot fertile boughs, erect, unchambered, colourless or slightly greenish or brownish, swelling at their summit into a sphere entirely covered with elongated cellules which are pointed towards the outside, the *sterigmata* or *basidia*, each of them bearing a chaplet of *spores* or *conidia*. The latter, round, rarely oval, are smooth, supple, pale and colourless, or slightly greenish or brownish, and possess a diameter of from two to three millimètres.

Endowed with great power of vegetation, it develops in the most varied surroundings, natural or artificial, of animal or vegetable origin, solid or liquid, neutral, alkaline, or acid. At the same time, there are some surroundings that suit it more particularly, especially those which are slightly acid or saccharine. Sown in these it shoots up rapidly if the cultures are well aërated and submitted to a suitable temperature, and this particular circumstance, along with the great volume of its spores, which makes its observation an easy task, permits of its evolution being followed step by step.

If some spores be sown in Raulin's mineral and acid liquid, or in beer-must, falling, in drops kept at the temperature of the body, on a warming plate—a process allowing of repeated examinations of the preparation from the same point—at the end of a few hours they are seen to double or triple in volume and become granulous. After six or seven hours they give birth to a *bud* which gradually elongates like the finger of a glove, then to another developing in a diametrically opposite direction, forming with the first an angle more or less open. A little later these elongations, while increasing in length, furnish laterally new buds, which in their turn elongate and also extend ramifications: this is the rough outline of the *mycelium*, which, continuing to develop, produces uninterruptedly, in alternate fashion, younger filaments. At the end of from 15 to 18 hours the *mycelium*, quite visible to the naked eye under the form of whitish down (the beginning of the *thallus*), consists of chambered, interlaced filaments. The *hyphi* still stand up perpendicularly to the principal axis, emerge from the nutritive liquid (*mycelium aëriale*), then swell up like a club to their terminal extremity, which proceeds to turn into a *sporiferous head*, generally rounded or spherical. On the two upper thirds of this there then appear *sterigmata*, finally producing, each of them, a chaplet of numerous spores, which the slightest shock is sufficient to disperse.

This adult state of the fungus may be obtained in twenty-four hours; but if the conditions of environment, temperature, or aëration are less favourable, it is obtained much more slowly, and it is sometimes only at the end of from five to six days that the fructiferous organs and the conidia appear. Even these may not develop. The *mycelium* in that case is slender, the sporiferous heads are wanting, or, if they exist, are small, without sterigmata, or furnished only with some of these organs in a puny and atrophied state. Despite this, the *Aspergillus* has not lost its vegetative power, and if the conditions are improved, it soon regains its normal aspect, even after several months of sojourn in environment which is ill suited to it.

The temperature most favourable to its development is nearly that of the body. It is, in fact, at 37°-38° that it shoots up best. Below this point the cultures are less and less abundant the more the heat is diminished, and it is with difficulty that at 20° we can get any well-developed and vigorous sporiferous heads. At 17°-18° they do not appear, and the cultures are impossible below 15°.

The action of increased temperatures on the development of the *Aspergillus fumigatus* is proportionally less felt. At 40° indeed, the cultures are still very abundant; a little less marked at 45°, they still exist at 50°, and remain sterile only in the neighbourhood of 55°. Nevertheless, Renon claims to have obtained cultures at 60°. But, contrary to what takes place when low temperatures are employed, in these cultures, at a high tempera-

ture, the conidia, however slightly tufted they may be, still appear up to the extreme limits of the vegetability of the fungus, while with low temperatures the production of the fructiferous organs ceases long before the development of the mycelium is arrested.

The aëration of the surroundings in which it is sown also plays an important part in regard to the crop. Essentially aërobic, the *Aspergillus fumigatus*, in order to reach maturity, requires incessant renewal of the stratum of air which surrounds it. Accordingly, the better aërated the nutritive substances by which it is supported are, the more quickly does its development proceed, and the more plentiful are its cultures.

Despite this need of oxygen, the *Aspergillus fumigatus* yet succeeds in producing a still abundant mycelium in cultures made in a vacuum, however little the nutritive substance suits it. I have, indeed, been able to obtain very easily and readily a fine white downy layer on the surface of ordinary and alkaline gelose, enclosed in tubes in which, after cooling of the substratum, the vacuum was created by the help of a tube filled with water, and by the passage, several times repeated, of ordinary lighting gas. I have also reached the same result by sowing it in liquid media, deprived of air by the same means combined with heating, with a view to expel from the substratum the oxygen that might be dissolved in it. If objection be raised on the ground that these cultures were obtained only because the vacuum thus made was incomplete in consequence of a mistake in the manipulation. I shall answer that it was perfect enough to permit of the microbe of tetanus, though essentially anaërobic, vegetating and growing abundantly in media thus treated and sown.

But in these cases the fungus only develops imperfectly and always furnishes only a mycelian layer, downy and of a beautiful white colour examined under the microscope; the layer is seen to consist of slender filaments, in the midst of which exist a few abortive sporiferous heads, small, without sterigmata, and consequently without spores, or furnished with meagre and wretched basidia.

The plant thus obtained can remain alive for a long time, even at stove-heat. Deprived of materials, its development simply comes to a standstill without suffering from its privation in any extraordinary degree; better proof is that if at the end of several months communication with the outer air be established in these cultures, it resumes its interrupted growth and in a few days furnishes an ample crop of spores, as resistant as if nothing had occurred to hinder their production.

This fact, moreover, is in accordance with what takes place in the organism, in which the injected spores are seen to produce a mycelium in the least aërated organs—a mycelium which, even at the end of a pretty long time, can give a very fine culture after the death of the animal, if the fragment of the organ which contains it is placed under suitable conditions of heat, moisture, and aëration.

But though developing with ease in surroundings deprived of air, in which it furnishes cultures bushy though incomplete, since the fructiferous organs are wanting, the *Aspergillus fumigatus* grows with great difficulty in the thickness of solid substrata, such as gelose, aërated though these may be. Media of this kind, when liquefied by slight warming and sown in that state with an abundant quantity of spores scattered, by shaking, over all the mass of the substratum, rarely lead to *intra-substantium* cultures, whatever be the conditions of aëration, and generally in these cases the spores alone develop, having failed in the superficial layers of the nutritive substance.

On the other hand, in liquids, the *Aspergillus fumigatus* shoots up rapidly in the midst of the culture-medium. At the end of a day or two there may be seen floating in the substratum small silky tufts, white and spherical, with

filaments converging towards a common centre. Preserving indefinitely their primitive characters if kept in the thickness of the nutritive medium, these mycotic tufts spread and produce spores, if they chance to reach the surface of the cultures, by virtue of the ascendant movement, slow but continual, with which they are animated.

The nutritive media in which the *Aspergillus fumigatus* grows may be divided into three categories: the first comprising those in which its vegetation remains fair; the second, those in which it grows steadily; and, lastly, those in which its cultures are luxuriant. The first group contains the alkaline substrata usually employed in bacteriology—bouillon made from either common or peptonised meat, gelose, blood-serum, etc. To the second group belong media of vegetable origin—potato, carrot, beetroot, vegetable broth, bread, etc. In the last group are comprised all slightly acid and saccharine substances—beer-must, Raulin's liquid, glycerinous and glucoseous media, etc. On *beef-blood serum* and *egg-albumen* it never furnishes more than a small number of cultures, in which the aërian mycelium hardly emerges to the surface of the substratum. Its general aspect is greyish, and the thallus meagre, assuming generally on its adherent surface a reddish tinge. In peptonised broth the thallus is thicker; at first white and regularly spread out on the surface of the nourishing liquid, it becomes greyish or blackish as it grows older, and then it bends over. Ordinary gelose is not at all favourable to the development of the *aspergillus*, and it is usually about the third day that the spores appear, forming a green layer first, then turning grey or black. Sown on ordinary gelatine brought up to 22°, the mycelium does not show for two or three days, and the spores appear only at the end of a week or even two. Cultivated on any vegetable substances, such as potato, carrot, beetroot, it grows abundantly, and attains its maximum rapidly. On saccharine and acid media its development is remarkably rapid. In a few hours the mycelium appears, like thick down of a beautiful white colour; at the end of the first day the greenish tint is already visible in the central parts, and this becomes rapidly darker.

Cultivated on any of these media the *Aspergillus*, from the moment when it produces spores, maintains, on the one hand, its typical form, and, on the other, its vegetative power, its resistance to destructive influences, and its virulence. Apart from the influence which they possess on the abundance of the crop by their varying nutritive qualities, all these substrata act in reality only on the production of the colouring matter which impregnates the fructiferous organs of the fungus, whose other characteristics remain unchanged wherever they come from. We thus see that the *Aspergillus* may develop in a great number of substances, under very varied conditions of aëration and temperature; it is thus by no means a delicate plant. And if we know that, the addition of various chemical products, metallic and other salts, mineral acids, etc., may be made at will. We see that it adapts itself perfectly to substrata, in which there exist, dissolved or suspended, active chemical bodies in pretty considerable quantities.

---

## HOW BONES TALK.

In general, old bones are not pleasant objects for contemplation; but their study by naturalists has shown them to be of inestimable value to science. Bones are the most durable and important of fossils, and without fossils there is nothing to show that any change has ever taken place on our earth. By them we learn that our modern types of animals existed from the first; that no type has been lost or materially changed, and that there has been a steady

improvement in structure from the first Silurian fishes to man, the last and highest of the vertebrates. So greatly do animals at the present time differ in almost every particular that at first naturalists despaired of being able to arrange them in groups or classes for scientific purposes. Some had two legs, others four, and some none at all; while some progressed by jumping, others walked, or ran, or wriggled through the brush; fishes or turtles swam in the water; while birds and bats flew in the air. They lived on all manner of food —grass, fruit, grain, and the flesh of other animals. It really seemed impossible to arrange them in any systematical order, according to external forms, habits, or mode of life; but the anatomists came to their aid, and gave a standard which is as satisfactory for animals in the dead past as in the living present.

The skeleton is the key, the type, the foundation of all. While it is true that no skeleton is complete, that some have more and some less than the normal number of bones comprising a particular part; that some are modified for a special purpose—still the type is there which is the base of the whole. Vertebrates have a vertebra, or back-bone, composed of a certain number of small bones, which form a line extending from one end of the body to the other. It may be horizontal, as in the quadrupeds and fishes; vertical, as in man; or inclined, as in the anthropoid apes. The individual bones may vary in number from 10 in the frog to 300 in the boa-constrictor, and 365 in some sharks. The number of cervical or neck vertebræ varies from one in the frog to 25 in the swan. The cervical vertebræ of mammals are invariably seven, no matter whether forming the long neck of the giraffe or the thick short neck of the mole. The caudal or tail bones range from three to four in a man to 270 in the shark. Fishes have a great number of bones forming the skull, while the bones in the head of the bird are so firmly united that they form a smooth round skull. The nasal bones of men are not larger than the nail of one's little finger, while those of the horse are enormously developed, so that the head is nearly all nose. In the elephant the nasal bones are so arranged as to form an attachment for that long prehensil nasal appendage called the trunk. The tusks of the elephant are greatly enlarged and rounded incisors or front teeth, while a class of animals like the sloth have no incisors above or below.

Our front teeth are blunt chisels; those of the rat, squirrel, beaver, and other gnawers, have very long chisels, which, by peculiar arrangement of the enamel and dentine, always have a sharp, cutting edge. The snakes have numerous needle-like teeth, bent backwards, the better to hold their living prey, while their jaws have additional bones, called quadrate, which, being disjointed, permits an enormous distension of the mouth, thus enabling them to swallow animals larger than themselves. The beaks of birds indicate clearly their manner of life. The eagles, vultures and hawks have strong hooked beaks and curved claws for holding and tearing their prey; the woodpecker family is characterised by a straight, rigid, and sharp bill, admirably adapted for cutting into bark and wood; the humming-birds, with their long, thin and awl-shaped bill for penetrating flowers; and the whip-poor-wills and goat-suckers have short triangular bills and wide open mouths to gather insects while on the wing. The snake has a tail and many ribs, but no breast-bone; frogs have a breast-bone but no ribs or tail. The breast bone of most birds has a keel, rising from its centre, for the attachment of powerful muscles connected with the wings; but the same bone in non-flying birds is as flat as that of a man. The ribs of the turtle are widened and united, forming the upper shell, as may be seen by a glance at its under surface, and the under shell is nothing more or less than a very large sternum or breast bone.

The anterior extremities of man, the forelegs of quadrupeds, the wings of birds, the paddles of a whale, the flippers of a turtle, and pectoral fins of a fish,

are of essentially the same structure, though differing somewhat in form and function. Like man, they each have one bone in the arm and two in the fore-arm, but the bones in the wrist differ in number, as well as those in the fingers. Of the latter, man has five, frogs and toads four, birds three, the ox two, and the horse one. The two bones in man's fore-arm partially rotate, so as to bring the palm of the hand uppermost if desired, and the fingers are flexible, if need be, for seizing objects; but the foreleg of many animals is only used for walking or running, and therefore these same bones are united, forming a firm support. The inferior extremities of man and the hind legs of other animals, being used only for locomotion, are more nearly analogous; but man walks with his foot flat on the ground, and the bear in the same manner, while the dog, horse, ox, and sheep walk on their toes, their heels being quite near their body. The horse walks on the tip-end of his one toe, and the ox on the tip-end of its two toes.

We have nails on our toes for their protection. The nail of the horse and ox is for the same purpose, and therefore covers the end of the toe, and is called the hoof. The leg bones of man and the elephant articulate in a continuous line, making a straight leg, while the bones of most quadrupeds unite obliquely, producing an angular limb. Many other illustrations might be given showing uniformity of structure in animals apparently quite different, or deviations from the normal type, which, though sometimes quite slight, are really of great importance in determining the character of animals, whether recent or extinct. While the bones of animals vary but little in chemical composition, they differ greatly in physical characteristics. They may be long or short, straight or crooked, flat or curved, and these variations point to some special use. The delicate brain is protected from external injury by being enclosed in a box of dense, hard bone. The long, curved, movable ribs enclose cavities for the abdominal and thoracic viscera. The small articulated bones indicate joints. The long bones of birds are usually hollow and filled with air, connecting with the lungs. The thigh bone of a turtle is horizontal for half its length, and then bends downward in order to escape from its shell.

All bones are more or less rough in places, showing where muscles were attached, and the amount of roughness indicates the size of the muscle required for a particular purpose. The grooves in the bone show the former passage of blood-vessels, and the holes, large and small, the path of nerves and the tubes through which the blood was carried. The size of the brain cavity indicates the amount of intelligence possessed; that of the thorax its power of respiration, and the abdominal cavity its digestive strength, all of which are important in determining the animal characteristics. A carnivorous animal must have a certain amount of intelligence to contrive plans for capturing its prey, a sound breathing apparatus for continuing a struggle, but only small digestive organs are necessary to change the flesh of another animal into its own tissue. The position and sizes of the prominent bones of the pelvis show whether the animal walked on two legs or on four, and whether it was an amphibian, a reptile, a bird, a mammal, or had an abdominal pouch, like that of an opossum and kangaroo. No one who has not studied bones in a thorough and systematic manner can imagine the wealth of information they reveal. The immutable laws which govern living beings were as persistent in the past as in the present. The great diversity of animals now living was even greater in those which mark the geological ages; but at the command of the anatomist each bone takes its proper position, the skeleton is restored, the animal endowed with life, its habits revealed, and its environments known.

## SOME NOTES ON THE OPERATION OF CASTRATION.*

BY VET.-CAPT. J. A. NUNN, C.I.E., D.S.O., A.V.D.

I MUST apologise for bringing such a worn and threadbare subject before this meeting, but my reason is that there is no operation that is performed in a greater number of ways and about which there is a greater diversity of opinion, each operator being in favour of his own method. Nevertheless, as far as I am aware there is no published expression of opinion which is the most generally adopted plan in the British Isles, and it is with the object of causing a discussion on the subject, and a ventilation of the views of the members of this Society on the matter, that I ventured to bring this paper forward.

I shall endeavour to divide the various methods I know of operating into two classes, viz.: 1st., those in which a wound or incision is made into the scrotum with a cutting or other instrument; 2nd, those in which the integuments are left wholly or partially intact.

With the ordinary claimed methods and with the means of restraint, preliminaries, and toilet of the parts I shall not weary you, gentlemen, with details of matters that you probably know more about than I do, but with one or two plans of operating that I have seen in far off parts of the world, and of which I am unable to find descriptions in any of the standard text-books. I shall crave your indulgence if I enter a little more into detail. Neither will I advocate any one method in particular, that being the result that I venture to hope the members of this Society will do for me, and which is the *raison d'être* of this paper. All I will do will be to put forth what appears to me to be the advantages and drawbacks of each particular plan and in which I hope to be corrected by more experienced practitioners than I am. Nearly all the ways of operating described I have either performed myself or witnessed, done either experimentally or in actual practice, as at one period of my life I had the advantages of a large surgical practice in which I had a free hand, there being no one to interfere with me, or to complain about results if they went wrong.

### *Operation with Opening into the Scrotum.*

The operation accompanied with an opening into the scrotum I will subdivide into three: 1st, that in which there is a large free incision; 2nd, that in which there is only a small incision; 3rd, that in which an opening is made by other means than the knife. I myself prefer, if possible, to operate with the animal under an anæsthetic. The advantages of this, otherwise than on the score of humanity, are that it keeps him still. The cremaster muscle is relaxed, and the testicle is early discovered without having to search for, and draw it down as is the case when it is retracted if the animal is not under an anæsthetic, and this of itself saves a great amount of bodily fatigue and exertion to the operator, which is a matter to be considered when a large number of operations have to be performed in a short space of time in a hot climate. The drawbacks to the use of anæsthetics are that it takes time, and more or less trained assistants are required. There is also the danger of a mishap, and it is reported that dangerous secondary hæmorrhage may take place from its use. It is, perhaps, foreign to the scope of this paper, but I cannot help saying that although I have administered chloroform to some thousands of animals for one purpose or another I cannot call to mind more than one or two fatal cases from its use. Neither have I ever had a case of secondary hæmorrhage that I could attribute to it, but as my experience has chiefly been in hot climates this may have something to say to it, but on this point I hope to be enlightened before the close of the evening. The incision

* Read at Central Medical Veterinary Society Meeting, February 4th, 1897.

into the scrotal sac may be made with either a scalpel, bistoury, or castrating knife. I prefer the castrating knife, as it is easier handled than either of the others. The disadvantage of it is that a special knife is required, but the instrument is so small and cheap that this is hardly worth considering. The advantages of an ordinary scalpel are that it can be used for other purposes, and, being fixed in the handle, is not likely to close on the operator's hand—as both the knife or bistoury might do if not furnished with a French catch—by the struggles of the patient if an anæsthetic is not employed. It is also easily cleaned and, if desired, sterilised, particularly if the blade and handle are of metal forged in one, as most modern instruments are. The disadvantages of it are that it is not so easy to handle as the castrating knife. The bistoury I do not see any advantage in, although it is used on the Continent and recommended by many foreign authors. An ordinary concave bistoury, such as is supplied with most pocket cases, is a somewhat clumsy instrument at the best of times, to my mind, for this purpose, and a centre one is more or less a speciality and not usually employed in every-day practice. From its length it is more likely to close on the hand of the operator than the castrating knife, unless it has a French catch, and it is not so easily cleaned as a scalpel. A point I would bring to your notice that appears to have been overlooked in many text-books is that it is better to make the incision as close to the raphe as possible. The wound does not gape so much, and to me there appears to be better drainage.

*Division of Cord.*

The scrotum being opened, the cord may be divided and the testicle removed by incision with the knife, by the hot iron, by scraping, by torsion, by the ecraseur, or emasculator, or strangulated and allowed to slough off by the ligature or wooden clams.

*Securing Open Mouths of Artery.*

Where the cord has been divided by the knife, the open mouths of the arteries have to be closed. This may be done (1) by ligaturing the cut ends of the vessels; (2) by cauterising them with a hot iron; (3) by twisting them with a pair of artery torsion forceps. In all three methods it is usual only to close the spermatic artery, but I usually close the cremaster also. I do not think it is absolutely necessary to do so, and I have never seen any mischief follow from leaving it open, but, all the same, I have seen a good deal of hæmorrhage from it, which frightens people, especially if the patient is of a grey or white colour, which so many animals in the East are. In warm climates, where the flies are a curse not understood here, it is important to keep any wound as clean and free from clots as possible, also to prevent any oozing of blood, which would attract them, and on this account I always close both the cremaster and spermatic arteries. I prefer carbolised catgut or kangaroo tendon for a ligature, but I have also used silk and hemp. The reason I prefer catgut or tendon is that it is absorbed, which silk or hemp is not, and I have had the scrotal wound remain open for a considerable time longer than necessary before the silk or hemp ligature came away. Some operators ligature the whole cord *en masse*, but I think this is objectionable, as a larger slough has to take place if silk or hemp is used than if the arteries alone are taken up, and, the cut end of the nerve being included, it must be very painful. The advantages of the ligature are that it is as quick and much more cleanly than any other method, and there is less blood collected in the scrotum to form clots, and therefore it allows the operation wound to close at once. The disadvantages are that secondary hæmorrhage may take place either through the ligature slipping or when it sloughs off, but in my own practice I have never had an accident of this sort take place. It is said that scirrhous cord is more likely to supervene

after ligatures are used. This may perhaps be the case, and I have been lucky, but all I can say is that I have employed it in a number of cases without any such complication, and I cannot help thinking that one of the reasons of such unfavourable results is that surgical cleanliness has not been observed. I can quite imagine if any piece of silk or hemp picked out of a box is used, that such an amount of irritation is set up in the end of the cord, that a fungoid growth takes place, particularly when the whole of it, together with the nerve is included, and a non-absorbable material that acts more or less as an irritant remains in the wound. Ligature of the artery after removal of the gland with the knife is the method by which the operation is performed in the human being, and as far as I am aware scirrhous cord such as is met with in veterinary practice is unknown. This operation is much more commonly performed in human surgery than formerly, being now largely used for the relief of enlarged prostate glands in aged persons, and had scirrhous cord been a common complication notice would have been taken of it in the medical periodicals.

A good method of securing the artery is to tie a knot in the vessel itself. I have not been able to find a description of this in any of the standard text-books that I have access to, and I will therefore trespass on your patience if I enter a little into detail. The animal is thrown, secured, the incision made, and the testicle exposed in the usual way. A longitudinal incision is made into the sheath of the cord, and the spermatic artery which, as you are aware is very tortuous, exposed, a blunt hook or needle passed underneath, and it is lifted out of its bed. A couple of inches or so are exposed and drawn out, which is easily accomplished by a few strokes of the knife and the hook. The artery is then divided at the lower exposed portion so that an inch or so is left free, in which a knot is simply tied as if it were a piece of string, the cord is then divided and the testicle is removed. I have operated in this manner a considerable number of times, and never had any bad results from secondary hæmorrhage. The advantages of this plan appear to me to be that there is no foreign substance of any sort in the wound. The vessel is absolutely closed, there is no bleeding and no clot forms, and if proper antiseptic precautions are taken with the operator's hands and the instruments surgical cleanliness is insured. Another advantage is that in out-of-the-way places no clams or special instruments are required, a scalpel with a proper director, or even the handle of a pair of forceps, being all that is necessary.

*Cautery.*

The method of searing the cut ends of the vessel with the actual cautery, is so well known that I shall not describe it, beyond mentioning that as it is only necessary to touch the open arteries, I fail to see the use of cauterising the whole cut surface of the cord, and if this plan is employed a pointed or budding iron applied to the cut end of the artery is enough. There is no occasion to apply a flat iron over the whole surface as I have seen done.

I cannot, however, help thinking that the hot iron is a somewhat barbarous weapon, and has too much of the dark days of the quack farrier and gelder about it, and that the sooner it is abolished the better. It, no doubt, has certain advantages, being quickly and easily used, and not very much surgical skill being required. It also must be for the time being, at all events, sterile and clean, but there is bound to be a certain amount of sloughing, that I cannot help thinking counterbalances these advantages. The drawbacks to its use are, that in some situations there is a difficulty in getting a fire hot enough or near enough at hand to heat it, but this can be overcome by using any of the thermo-cauteries now sold. I think the best is Paquelin's, but the drawback is that the instrument is somewhat expensive, and in foreign countries there is a difficulty in getting the benzoline to work with it.

*Twisting.*

Securing the arteries by twisting, consists in taking the cut ends up in the jaws of a pair of artery torsion forceps, and twisting them round five or six times. The advantages of this plan are that it is done very quickly and with very little trouble. The disadvantages are that it is not quite safe, particularly in old animals, and I have discontinued using it, as I have had several bad cases of secondary hæmorrhage, necessitating the application of a ligature, in my practice.

*Division of Cord.—Ecraseur.*

The plan of removing the testicle by the ecraseur is one that was originally employed on the Continent, the instrument first used being the chain de Chassanac, which worked with a ratchet, but which has been modified into the present pattern with a screw action. The advantage of this instrument is that it is simple and speedy. The disadvantages are, that secondary hæmorrhage is likely to take place, and the chain is somewhat troublesome to keep clean. Also, that there is more sloughing likely to take place from the crushed end of the cord than a clean incision with a knife. I have had serious hæmorrhage after operating with the ecraseur, and I am inclined to think that one of the causes was the chain being too sharply bent on the cord, two of the links being bent at angle instead of three coming into play, each at a tangent to the circumference, so as to form three sides of a square, at the loop, instead of only two at an acute angle. Why this arrangement of the chain should be necessary I am unable to say, but since I have adopted it I have not had bad results. I need hardly say that the chain should be tightened very slowly, as it is well known that if the artery is divided too quickly it will not be closed. The difficulty in properly cleaning the chain is no doubt a drawback to the instrument, but with a little care this can be easily overcome. The plan I adopted with it was to remove it from the handle as soon after using it as possible, and scrub it well with a clean nail brush in hot soap and water, in which a little soda had been dissolved, carefully picking out any pieces of tissue that had been caught in the links. It was then boiled in a solution of soda and water for about twenty minutes and transferred to a 1 in 20 solution of carbolic acid for some hours, or preferably all night, then wiped dry with a clean piece of lint and covered with vaseline and put away. When used again it was soaked in spirit, boiled in soda solution, and transferred to the carbolic acid, where it was left for at least half-an-hour before being used. The same plan was adopted with all other instruments.

*Torsion.*

The Torsion operation is also of French origin. It is the method I chiefly employ myself, whether rightly or wrongly I do not know, but, as I have said, every operator has his own pet way and this is mine. It is the way that I instructed the native students I had under me during the time I was Principal of the Lahore Veterinary College, as from my experience it is the safest way in which the operation can be performed by non-professional persons. One of the chief duties of these natives was the castration of the colts of native breeders, and I found that fewer accidents and casualties happened when this plan was adopted than by any other. The advantage I found was that the forceps and clamps could be made by any intelligent native smith in India at a very small cost. They were not easily broken and could be cleaned without much trouble. The disadvantage is that the instruments are somewhat bulky to carry. Some years ago to obviate this I made a clamp (a modification of M. Beaufils) and forceps combined in one, that folded up into a case, and which could be carried in the pocket. The twist of the forceps taking place at a fixed distance from the clamp, prevented any dragging on the cord. The ordinary

castrating clamps sold by instrument-makers, answer the purpose well enough, if the small shoulder at the end of the roughened edge is filed off, so that they come into close apposition, but as made they are dangerous, for unless the edges meet closely together and the cord is gripped tight, the twist imparted by the forceps is likely to be continued beyond the clamp, up into the inguinal canal or even into the abdomen. This not only causes a large amount of bruised tissue, which it is desirable to avoid, but lengthens the operation, half-a-dozen revolutions of the forceps being enough if the cord is held tight, whereas a great number more are required if it is loose. On this account I use any of the ground clamps sold, such as Borgnirz, Wallis Hoare's, or even the human hæmorrhoid clamps, if nothing else is at hand, the only objection being that the grooves are liable to collect dirt and require careful cleaning. If the ordinary castrating clamps are used, they should be reversed, with the concave side next the skin, the convex outwards. The reason of this is that the forceps come much nearer to them, and a shorter grip is taken of the cord, which is not so likely to be spun out into a long thread, which is likely to take place if a long portion between the forceps and clamp has to be twisted.

*Scraping.*

This method is commonly used in South Africa, especially by the Dutch farmers in the Orange Free State and Transvaal. It is also used by the Brinjaries, or wandering Gypsie tribes of Central India, with bullocks, these people being outcasts, and having no religious prejudices about inflicting a wound on the sacred animal like the high caste Hindus have. It is also used by the Mohammedan camel breeders of theBikanur and Yundmere deserts, and the southern parts of the Punjab, when it is necessary to operate on the camel, which in farming, I may say, is seldom done. In Kashmere and the Himalayan Hill districts it is the way by which rams and goats are castrated. The scrotum is opened and the testicle is exposed in the usual manner. Sometimes an assistant holds the cord a few inches above the testicle, the operator holding the gland, but more frequently this is dispensed with, the operator drawing the testicle and cord forcibly out of the scrotum, while with the right he holds a blunt knife transversely across the cord, rubbing it up and down till frayed through. The operation looks barbarous enough, and one would think admirably calculated to promote peritonitis, but although I have carefully inquired, in both India and the Colonies, I could not hear that any such result was feared. If it had, the probabilities are that it would have been discontinued. Perhaps the reason that bad effects did not take place, is the fact that in all the countries where I have witnessed this mode of operating, the climate has been exceedingly dry, the country itself high-lying and the atmosphere rarified. How this plan would answer in a moist climate like the British Isles, I cannot say, but perhaps some member of the Society may be able to inform us. In India the period of convalescence in the ox when operated on in this way is certainly very short, and as it is impossible to overcome the prejudices of the Oriental, who will not have anything new, I taught the students at the Lahore Veterinary College a modification of the plan of scraping, which was to divide the cord with a saw made on the model of human metacarpal saw or those folding ones with cross-cut teeth that are contained in pocket knives. This plan appeared to answer better than scraping, and is now largely practised in the Punjab.

*Emasculator.*

This plan of operating I have had less experience with than any other. It appears to me to be a combination of the ecraseur and scraping. The instrument I used was one made in the shape of a pair of bone forceps, with a male and female blade, the former convex the latter concave, but there are other patterns

in the market. The process seems to be very simple and not much surgical skill required, but if performed without any anæsthetic is painful. The few cases I have operated on by this means did well, but, as I have said, I have not had sufficient experience to be able to give any opinion as to its advantages or disadvantages.

*Cautery.*

In former times, a hot sharp firing iron, such as is used in line firing, was employed both to open the scrotum and sever the cord, but I myself have given up the practice long ago. In the first place it is, to say the least of it, a somewhat barbarous procedure, and in hot countries I have found it exceedingly likely to give rise to peritonitis. In the hands of semi-skilled persons, with whom lately I have had largely to deal, I have seen some bad cases of burns of the skin round the scrotum, from carelessness or forgetting to place any protective material over the part, as when I have operated in this way, I have found it necessary to place a folded cloth such as a duster, dipped in a solution of carbolic acid, or phenol, on each side of the scrotum, to protect the skin from the heat of the iron. Opening the scrotum with a hot iron instead of a knife has, I believe, happily gone out of use, but it was said that the object of its employment was that the wound made did not heal up so quickly, and that when the cord was also divided by the cautery, pus was not so likely to accumulate. This doubtless was the case, but there are better ways of keeping it open if necessary, and I myself fail to see a single argument in favour of this plan.

*Ligature and Clamps.*

The method of strangulating the vessels, either by a ligature round the whole cord or a wooden clamp drawn tight and allowing the testicle to either slough off of itself, or removing it with a knife after the lapse of some hours, is one that some years ago was much in vogue, but which I am not in favour of. In the radical operation for the relief of inguinal or scrotal hernia, no doubt the clams and covered operation are the only means we possess of preventing descent of the intestine after reduction, but my experience even in such cases is that with due care they are not invariably required. Both ligature and clamps must cause a good deal of pain and disturbance, and I have seen high surgical fever produced by them. I only operated once with the clamps in a normal case in India in my early days in that country, and a more distressing and disgusting sight I have seldom witnessed. Flies were attracted in thousands, and were impossible to keep off. High surgical fever set in, the exposed glands became fly blown, and the animal fidgeted and distressed beyond relief, and in the end I had to cut him a second time and remove the testicles with a knife.

*Operation with a small Incision.*

There are only two ways of operating with a small incision and leaving the atrophied and useless gland in the sac. In the first an incision about an inch or an inch-and-a-half long is made through the skin into the scrotum, so that about an inch of the cord is exposed to view. In order to do this the incision is made not along the raphe at the fungus of the scrotum, but longitudinally over the cord, about half way up it. The incision being made, a blunt hook is passed into it round the cord, and about an inch of it drawn out through the external wound, and brought to view. The covering of the cord is then incised, and the artery and duct exposed, a catgut ligature being passed round both, so as to occlude them. The hook is then disengaged, the cord allowed to fall back, and the lips of the scrotal wound brought together by a few sutures. The advantage of this method is that there is a very small wound that requires

very little after attention or dressing, which is not the case when there is a free incision made; neither is there any discharge to attract flies. I have operated by this method, while on active service, on animals standing out in the open without any proper protection or means of keeping the flies off, in hot climates; and there has been little or no systematic disturbance beyond slight swelling, the patient being able to do his daily march with the army, and the procreative powers were completely destroyed. The disadvantages of this plan are that there is a certain amount of stiffness that takes a somewhat longer time to subside than by other methods, but perhaps this was due to the surroundings of the patient on active service in the field. There might also be a dispute if the animal was ever sold as a gelding, the atrophied gland remaining, and there being no cicatrix along the broad margin of the scrotum. Such a dispute is, if my memory serves me right, mentioned by M. Cadeac in his work on forensic veterinary medicine, but it could only take place among laymen who were ignorant of this way of operating. The second plan is to make the incision and expose the cord in the same way. The arteries are then tied with two ligatures a little distance apart, and the whole mass of the cord divided between them, the testicle remaining in the scrotum. I have operated in this way, and I believe it is used on parts of the Continent, but I fail to see any advantage over ligaturing the artery and duct.

*Operation without Opening the Scrotal Sac.*

The ways of operating without opening the scrotal sac are by mulling, crushing, and bistournage, and by that in which a partial incision is made in its walls by the covered operation.

*Mulling and Crushing.*

I am not aware that mulling or crushing are ever performed in Europe, but in India and the East are the common native methods, the first with horses, the second with bullocks. The animal is thrown, and fixed with the upper hind limbs drawn forward in the usual manner. The penis is drawn from the sheath, carefully washed, cleaned, and lubricated with some emollient, clarified butter, or ghee being generally used. The testicle is grasped in the right hand, and drawn downwards until the cremaster muscle is tired out and retraction ceases, as an anæsthetic is never employed. When the muscle is tired out the cord is grasped in the two forefingers and thumb of the left hand, the right still holding the testicle, and kneaded between them at the same time as they are rubbed up and down on it, tightly squeezing it at the same time. This process lasts for about twenty minutes or half an hour for each testicle, and at the end of this time both artery and duct are so bruised as to be obliterated, and the gland atrophies. During the process the scrotum is kept well lubricated to prevent the skin being abraded.

*Crushing.*

Crushing, as far as I know, is only used with bullocks. The upper limb is drawn forward, and the testicles allowed to rest on the flat of the lower thigh. Five or six blows are given with a heavy stick about 18 inches long, made out of hard wood with a knob at the end something like a life preserver, and the testicle smashed to pieces. Some operators afterwards manipulate the gland so as to disintegrate it, but the majority leave it alone. No doubt these are primitive and crude methods, and both are painful in the extreme, mulling taking a long time, and the crushing putting one's teeth on edge to watch; but, all the same, in the countries where they are used there is something to be said in their favour, when the operator is a native, and the operation performed in an Indian village. The flies attracted

by an open wound are a pest in the East that here cannot be realised, and though there is a very great swelling there is no suppuration, and the insect plague avoided. In half-wild cattle that are difficult to catch and handle this is of primary importance, as when the operation is performed by incision it is necessary to catch the patient and dress the part at least once daily, otherwise it soon gets fly-blown and in a horrible state, and this from the surroundings and conditions of things would be impossible to do. Although, of themselves, the operation of mulling and crushing cannot be defended, still, considering the circumstances under which they are performed, and who the only available operators are, they have to be looked upon as a necessary evil, and this was the opinion I gave when consulted on the matter some years ago by the Indian Government as to whether they should be considered cruelty to animals or not for legal purposes.

*Bistournage.*

This is also a Continental method, and I will not waste time by minutely describing it, a full account of the process being given in Peuch and Toussaint's *Precis de Chirurgerie Vétérinaire*, and in English in Liautard's "Castration of the Domestic Animals." Suffice to say that the testicle is so turned on itself that the arteries and ducts are twisted and strangulated, and the gland atrophies. The advantages of this method are that there is no wound made or dressing required. The drawbacks are that a certain amount of skill, or rather I should say knack, is necessary in the manipulative process, and the sexual instinct is not always destroyed. There is also the chance of a dispute if the animal is sold as a gelding, and there being no cicatrix on the scrotum it might be difficult to prove.

*Clamps.*

The operation of placing one pair of large wooden clamps over the entire scrotum, embracing both testicles and allowing the whole mass to slough off is, I fancy, never carried out in Europe. It is used by the Tartars in the Corea, and when in Japan I was shown some horses in a Battery of Artillery of the Japanese Army at Kiota that had been imported from the Corea that had been operated on in this fashion, but I have never seen it done, and the Japanese officers did not appear to think it a very desirable procedure.

These, gentlemen, are the principal methods by which castration is performed that I am acquainted with, and about which I trust to get the benefit of your opinion. Some of them are, no doubt, rough and ready, others super-refined, or even described as finicking, but in most things in life I have found it best to endeavour to educate one's self to do them as near perfection as possible. If necessary it is always easy to dispense with a portion or whole of the refinements and adapt one's self to the circumstances of the case, but if one sticks to a rough and crude method of doing things it is sometimes difficult to perform them in a super-refined and finicking way if required to.

---

ELECTRICAL transmission of power is a subject which is at present occupying a considerable share of attention. The completion of the system of transmission from Niagara to Buffalo is a triumph in this department of electrical engineering. The Niagara Falls are used to work a system of turbines which actuate a large number of dynamos. The current from these passes over a distance of twenty-six miles to the town of Buffalo, where it is exclusively used for the purposes of electric traction. The longest distance in Europe over which power is electrically transmitted is twelve miles, from Tivoli to Rome. One thousand horse-power is the energy supplied at Buffalo, and the present system may be readily extended to supply four times as much, when the growth of the city gives rise to an increased demand.

## CHINOSOL AS AN ANTISEPTIC.

BY E. R. EDWARDS, M.R.C.V.S., BARTON-UNDER-NEEDWOOD.

It is, I believe, pretty generally admitted that most of the antiseptics used in surgery have certain objectionable qualities, chiefly toxic, caustic, or odoriferous; and on that account I venture to draw the attention of your readers to chinosol, an antiseptic of great value, which does not appear to be as widely known as it deserves.

It is a pure chemical product, whose composition is indicated by the formula $C_9H_6N.KSO_4$, and it is applicable to all the purposes for which an antiseptic is likely to be required, so that it may be used internally as well as externally.

The advantages of chinosol may be summed up by saying that it is non-caustic, non-toxic, very diffusible, almost odourless, non-hygroscopic, a powerful deodorizer, and does not coagulate albumen.

Laboratory experiments in London last year proved that chinosol is approximately 40 times more powerful than phenol (carbolic acid) and at least 10 times more effective than perchloride of mercury in its germicidal action. Couple this with its very free solubility in water, and the fact that it does not coagulate albumen, and its extreme value as an antiseptic, is at once evident. Moreover, it is comparatively inexpensive.

I subjoin notes of a few cases I have recently treated with chinosol:—

*Case I.*—A cow suffering from the ill-effects of having eaten a quantity of compressed barm from one of the large breweries at Burton-on-Trent.

This barm (very much like German yeast in appearance) is largely used in my neighbourhood as a manure for land, it being the custom to spread the barm on the land, directly it is fetched from the breweries. However, a few weeks ago a farmer near here was unable to spread the barm with the usual promptitude, and so he put it about his field in heaps, and covered it with soil, etc., just as lime is sometimes treated before being ploughed in.

The moisture from the ground soon started the barm working, and it was not long before each little heap began to ooze through its covering of soil. The cows were attracted thereto, presumably by the tempting "beery" odour, and they ate a considerable quantity of the barm.

The first noticeable result was that the cows became very drunk, and were tumbling about in all directions, and then a few of them were troubled with tympanites for an hour or two. They all recovered without any treatment except one (my patient), and I was not asked to see her until about twenty-four hours after she had eaten the barm.

At the time of my visit she was down, tongue hanging out, gasping for breath, owing to the enormous distension of the rumen with the gas formed by the fermentative action of the barm.

I inserted a trocar and canula into the rumen at once, and this gave speedy relief. My subsequent treatment consisted of antiseptics administered through the canula. Neither carbolic acid nor perchloride of mercury had the slightest beneficial result, and it was not until I tried chinosol that I was able to control or check the formation of gas. I gave fifteen grains of chinosol, in solution, through the canula every six hours for three days, with the best possible results, and with no ill-effects whatever.

*Case II.* A retriever dog, in jumping some iron railings, became impaled on the spiked top thereof, the point of the railing entering the skin about an inch behind the opening of the sheath of the penis, and tearing its way right through between the hind legs, up to within about half-an-inch of the anus, laying bare the penis, and ripping open the scrotum, and exposing its contents. I sutured the wound after thoroughly cleaning it.

The only subsequent treatment consisted in bathing the part, four times daily, with a warm solution of chinosol, 1 in 10,000 (one in ten thousand).

The wound healed beautifully, and very rapidly, and although it was so large and jagged there was *not once*—during the whole process of healing—*the slightest sign of anything at all like suppuration.*

*Case III.* An unbroken cart colt, with an enormously swollen head, and a peculiar hesitating straddling gait affecting the hind limbs, both of which were slightly swollen.

At first sight this looked something like purpura hæmorrhagica, but a closer examination revealed the true nature of the case. The colt was suffering from an immense facial abscess, the cause of which I am unable to say. It was certainly not strangles, and it is difficult to trace any connection between the abscess and the peculiar action of the hind limbs.

I had continuous warm fomentations applied to the face and lower jaw; the abscess matured more rapidly than I expected, so that I did not have an opportunity of using my lancet. It broke and discharged itself, and a very large slough came away, exposing a considerable portion of the outer aspect of the left ramus of the inferior maxilla. The exposed bone was well washed with a solution of chinosol (one in ten thousand), and the whole cavity injected with a solution of similar strength twice daily.

After the first dressing there was no suppuration or discharge whatever; granulations were rapid and very firm, and the wound healed without any unfavourable symptoms.

As a matter of interest it may be said that in twelve hours from the time the abscess broke the abnormality of gait had quite disappeared.

In addition to the foregoing cases I have found chinosol of service in various other instances, and I may mention that about a week ago I was talking to a medical friend of mine who has under treatment a poor girl who was recently run over by a train, necessitating the amputation of both her legs, one above the knee and one just below it. He had been using perchloride of mercury as an antiseptic for the stumps, and he was speaking about the disadvantages attending the continued use of that drug.

I suggested chinosol, and gave him some to try; since then he has been using it, and he tells me that he is more than pleased with the result.—*Veterinary Record.*

---

## THE TOXICOLOGICAL BEHAVIOUR OF PICRIC ACID AND ITS SALTS, AND OF CERTAIN KINDRED SUBSTANCES.

FREE picric acid is a powerful poison for algæ; in a 0·5 per cent. solution they died within 15 minutes; in 0·1 and 0·05 per cent. solutions within 24 hours. Many fungi are not quite so sensitive to picric acid.

Free picric acid is no powerful poison for fungi. With algæ a concentration of 0·05 per cent. is sufficient for poisoning, whilst fungi require one of 0·1 per cent. Ammonium picrate is for low organisms a more powerful poison than potassium picrate.

In a solution of benzoic acid of 0·2 to 0·1 and 0·65 per cent., all life of algæ and of low organism was extinguished in five hours.

Potassium nitro-benzoate in a 0·2 per cent. solution destroys all animal and vegetable life in 6 hours.

According to Wehl, Martius yellow or dinitro-a-naphthol is a strong poison for dogs, the fatal dose being 0·3 grm. per kilo. living weight. Naphthol yellow S, a sulpho-acid of dinitro-a-naphthol, is harmless. A comparison between ortho- and para-nitrephenol shows that the para- compound is

somewhat more poisonous to algæ and infusoria than the ortho- compound. It would be interesting to carry out a comparison between para- and ortho-compounds in a extensive series of organic compounds.—*Chemiker Zeitung and Chemical News.*

Picric acid has been recently recommended as a local application in eczema, and is being used extensively in human practice. Saturated aqueous solutions and ointments are the forms employed. No doubt, veterinary surgeons will be induced to try this agent in eczema in dogs and other animals. In view of the behaviour of some carbolic derivatives very closely allied to picric acid, it will be well for practitioners to assure themselves that the preparation which they are using is not toxic.

---

## RINDERPEST IN AFRICA.

The latest information received from the Cape of Good Hope goes to show that the Government there, in pursuance of the policy recommended by its veterinary advisers to prevent the spread of rinderpest into the colony, has accepted their recommendations, and has issued the following proclamation :—

*Proclamation for the Prevention of the Spread of Rinderpest.*

I. Disinfection of Hides, Skins, Horns, Hoofs, and Feathers.

1. Hides, skins, horns, hoofs, and feathers will only be allowed south of the Orange River, and will only be accepted for conveyance by rail, after being thoroughly disinfected in the manner hereafter described at railway stations and the authorised crossing places in terms of Regulation 5 issued under Proclamation No. 387 of 1896, or at such of them as shall hereafter be notified.

2. No hides, skins, horns or hoofs shall be passed by the Supervising Officer unless accompanied by a declaration signed by the consignor (or his agent) that they are from animals that have not died of rinderpest. Any hides, skins, horns, or hoofs, not accompanied by such declaration, shall be immediately destroyed by the Supervising Officer at the consignor's expense.

3. Disinfection shall be supervised by the officer appointed by Government for the purpose, but shall be performed by the owners or consignors or their agents.

4. Dried hides, horns and hoofs shall be immersed in a liquid disinfectant for a period of at least 30 minutes.

5. Green hides and skins shall be immersed in a liquid disinfectant for a period of at least 15 minutes.

6. The disinfectant used may be either a 2 per cent. solution of carbolic acid or a 5 per cent. solution of Jeyes' Disinfectant, Odam's Disinfectant or Izal.

7. Feathers shall be hung up for three hours in a chamber charged with sulphurous acid produced by burning an excess of sulphur in a closed chamber.

8. Hides, skins, horns, hoofs, and the packages containing feathers, when disinfected, shall be marked for the guidance of the railway officials, and shall be accompanied by a certificate that disinfection has been efficiently performed, signed by the supervising officer, without which the railway officials shall refuse to receive the articles.

9. When disinfection is completed, the articles disinfected shall be loaded direct into a previously disinfected railway truck.

10. Drying, salting, or any other subsequent treatment of hides or skins shall be done by the owners or their agents at their own risk.

CERTIFICATE OF DISINFECTION OF ANIMAL PRODUCE.

(Prescribed by Railway Circular No. 819 of 5.11.96.)

Place.....Date..... Time .....
To the Station Master.....Station.

This is to certify that the undermentioned produce has been duly and properly disinfected, in accordance with the Government requirements, and under Government supervision.

Signed.....Rank.....

*Particulars of Consignment.*

| Description. | Owner. | No. | Marks. | Re-marks. | To be consigned to | Name of Station. |
|---|---|---|---|---|---|---|
| | | | | | | |

II. DISINFECTION OF TRAVELLERS AND PASSENGERS.

1. Travellers and passengers shall be disinfected at railway stations and at the authorised crossing places, in terms of Regulations 7 and 8 issued under Proclamation No. 587 of 1896, by the police or other persons duly authorised by the Secretary for Agriculture in the manner hereafter described.

2. Natives shall strip and enter a bath containing two per cent. carbolic acid; they shall then be provided with a blanket or other suitable clothing until the clothes they are wearing have been disinfected.

3. The clothing of all natives, and the blankets, rugs, karrosses, wraps, etc., of all Europeans, whether from disinfected areas or not, shall be subjected to sulphurous acid fumes produced by burning an excess of sulphur in a closed chamber for at least 15 minutes, pending arrival and erection of a proper steam disinfecting apparatus.

4. Europeans coming from an infected farm or place or who have otherwise rendered themselves liable to infection from contact with natives or their huts or kraals, shall be disinfected in such manner as, in the discretion of the disinfecting officer, may be deemed necessary, and their clothing as provided by clause 3.

5. The disinfectant to be used shall be
2 per cent. solution of carbolic acid, or
5 per cent. solution of Jeyes' Fluid, or
5 per cent. solution of Odam's Disinfectant, or
5 per cent. solution of Izal.

6. Boots of all Europeans and natives shall be well dry-brushed, and then the uppers and soles well wiped with the disinfecting solution by means of cloths.

7. Europeans on coming from an infected farm or place, and all natives upon presenting themselves at a railway station, siding, halt, or other place north of the Orange River for the purpose of travelling by rail to any place south of the Orange River, shall, before the stationmaster, clerk, guard, or other officer, permits them to obtain a travelling ticket, hand to the stationmaster or booking clerk a certificate signed by the disinfecting officer, in terms of Form A, to the effect that they and their clothes have been properly disinfected, as well as such articles and things in their possession as are intended to be carried by rail, not being articles or things actually prohibited to be carried south of the Orange River.

8. Any European coming from an infected farm or places or who have not in any way been liable to infection, shall sign a certificate to that effect in terms of Form B, and without such certificate shall be deemed as coming from an infected farm or place, or otherwise to have been liable to infection, and shall be subject to all provisions and regulations, attached to persons coming from infected areas, or liable to infection; and if the above certificate contains any false statement, the person signing the same will be liable to a penalty not exceeding £100, or,-in default of payment, to imprisonment, with or without hard labour, for a period not exceeding six months.

*Rinderpest.*

FORM A.

This is to certify that.....together with his clothes and the articles or things in his possession, authorised to be carried by Rail, have been properly disinfected as required by the Government Regulations.

Disinfecting Officer.

*Rinderpest.*

FORM B.

I..... .....of..... ..... do hereby certify that I have not come from any farm or place infected with Rinderpest, and I have not in any way, to the best of my knowledge and belief come in contact with infection.

(Signed)

NOTE.—If the above certificate contains any false statement, the person signing the same will be liable to a penalty not exceeding £100, or, in default of payment, to imprisonment with or without hard labour for a period not exceeding six months.

---

## REGULATIONS FOR ADMISSION TO THE ARMY VETERINARY DEPARTMENT, 1897.

(*Continued from page* 220.)

### VI.—HALF-PAY, ETC.

(*Extract from the Royal Warrant for Pay, etc.*, 1896.)

"471. If a veterinary-lieutenant be unable to complete the period of 10 years' service referred to in Article 432 from any cause other than the reduction of establishment or ill-health (see Article 474), he shall be allowed not more than six months' leave without pay, at the expiration of which period, if unable to resume duty, his services shall be at once dispensed with, and he shall have no further claim on the department.

"474. Subject to Article 324, a departmental officer who becomes medically unfit for duty, or who becomes supernumerary on reduction of establishment, shall be dealt with, as regards removal to half-pay and restoration to full pay, under the regulations applicable to combatant officers similarly situated so far as they apply (Article 305 and 306)."

"480. RATES OF HALF-PAY.

| | Daily. £ s. d. |
|---|---|
| Veterinary-lieutenant-colonel— | |
| After 20 years' service .. .. .. .. | 0 17 6 |
| ,, 25 ,, .. .. .. .. | 0 19 0 |
| ,, 30 ,, .. .. .. .. | 1 1 0 |

| | | | | | |
|---|---|---|---|---|---|
| Veterinary-Major or Veterinary-Captain— | | | | | |
| After 10 years' service | .. | .. | .. | .. | 0 8 6 |
| „ 15 „ | .. | .. | .. | .. | 0 10 6 |
| „ 20 „ | .. | .. | .. | .. | 0 13 0 |
| „ 25 „ | .. | .. | .. | .. | 0 16 0 |
| Veterinary-Lieutenant— | | | | | |
| Under 5 years' service | .. | .. | .. | .. | 0 4 0 |
| After 5 „ | .. | .. | .. | .. | 0 7 0 |

VII.—RETIRED PAY.

(*Extract from the Royal Warrant for Pay, etc.*, 1896.)

"583. An officer of Our Army Veterinary Department shall be entitled to retire after 20 years' service.*

"584. An officer of Our Army Veterinary Department may be permitted to retire after 10 years' service,* in cases in which such retirement may be deemed expedient by Secretary of State.

"585. SCALE OF RETIRED PAY.

*Officers under the Rank of Director-General retiring under Article* 583.

| | Yearly. £ |
|---|---|
| Veterinary-Lieutenant-Colonel— | |
| After 20 years' service* .. .. .. .. .. | 250 |
| „ 25 „ .. .. .. .. .. | 350 |
| „ 30 „ .. .. .. .. .. | 420 |
| Veterinary-Major or Veterinary-Captain— | |
| After 20 years' service* .. .. .. .. .. | 200 |
| „ 25 „ .. .. .. .. .. | 300 |

Officers retiring under Article 584.—A gratuity of £800.

"586. The Director-General shall retire on completion of seven years' service as such, and the retirement of the other officers of Our Army Veterinary Department shall, subject to Article 587, be compulsory at the age of 55, except as laid down in Article 438.

"587. It shall be competent to Our Secretary of State to place a veterinary officer on the retired list on the completion of 10 years' service, or after 30 years' service.

"588. SCALE OF RETIRED PAY.

*Officers retiring under Article* 586.

| | |
|---|---|
| Director-General, Army Veterinary Department .. | £600 a year. |
| Veterinary-Lieutenant-Colonel— | |
| After 20 years' service* .. .. .. .. | 320 „ |
| „ 25 „ .. .. .. .. | 400 „ |
| „ 30 „ .. .. .. .. | 420 „ |
| Veterinary-Major or Veterinary-Captain— | |
| After 10 years' service* .. .. .. .. | 8*s.* 6*d.* a day. |
| „ 15 „ .. .. .. .. | 10*s.* 6*d.* „ |
| „ 20 „ .. .. .. .. | £250 a year. |
| „ 25 „ .. .. .. .. | 350 „ |

*Officers retiring under Article* 587.

Afters 10 years' service.—A gratuity of 800*l.*

After 30 years' service.*—Retired pay at the rate fixed by Article 585.

* As laid down in Article 500.

for the officer's rank when retiring voluntarily after 30 years' service.

(*c*) RETIREMENT ON ACCOUNT OF MEDICAL UNFITNESS.

CONDITIONS OF RETIREMENT.

"589. An officer of Our Army Veterinary Department, if reported by the regulated medical authority* to be permanently unfit for duty, and if not previously retired on account of age, shall be retired from our Army at the expiration of five years from the date on which he was placed on the half-pay list, or, on the officer's application, at such earlier date as may be decided by Our Secretary of State.

"591. SCALE OF RETIRED PAY.

All ranks above Veterinary-Lieutenant—

*Medical Unfitness caused by Military Service.*

Same rates as for officers retiring under Article 586, under '(*b*) RETIREMENT ON ACCOUNT OF AGE, &c.'

*Medical Unfitness not caused by Military Service.*

If the officer would not have been qualified for retired pay or gratuity had he retired voluntarily, but has at least 12 years' service† retired pay, equal to the half-pay of his rank for such period only, not exceeding five years from the date of his retirement from our Army after five years on half-pay under Article 306, as our Secretary of State shall determine according to the merits of the case.

Veterinary-Lieutenants—

*Medical Unfitness caused by Military Service.*

Under 5 years' service,† 4*s.* a day.

After 5 years' service,† 7*s.* a day, or a gratuity at the rates mentioned below.

*Medical Unfitness not caused by Military Service.*

| | £ |
|---|---|
| After 5 years' service† .. .. .. .. .. .. | 400 |
| „ 6 „ .. .. .. .. .. .. | 480 |
| „ 7 „ .. .. .. .. .. .. | 560 |
| „ 8 „ .. .. .. .. .. .. | 640 |
| „ 9 „ .. .. .. .. .. .. | 720 |

ARMY VETERINARY DEPARTMENT,
WAR OFFICE,
*January*, 1897.

APPENDIX I.

MEDICAL EXAMINATION OF CANDIDATES.

I.—A candidate must be in good mental and bodily health, and free from any physical defect likely to interfere with the efficient performance of

* "The Regulated Medical Authority" shall be held to mean a Board of Officers of our Army Medical Staff, or, in exceptional cases of leave of absence on account of sickness, when an officer cannot be reported upon by such Board, any medical evidence that may be satisfactory to the director-general of our Army Medical Department, provided that the officer have been previously reported upon by such Board, or, if serving abroad, be examined by such Board on his arrival when invalided home.—Pay Warrant, Article 1320.

† As laid down in Article 500.

military duty, and it should be stated whether he is of pure European descent.

II.—The examination will be conducted by a Board of Medical Officers.

III.—The attention of the Board will be directed to the following points :—

(*a*) That the correlation of age, height, weight, and chest girth is equal or superior to that which is given in the following table :—

*Physical Equivalents..*

| Age last birthday. | Height in inches without shoes. | Weight, without clothes, lbs. | Chest girth in inches. |
|---|---|---|---|
| 21 | 64 | 137 | 33½ |
| 22 | 64 | 139 | 34 |

(*b*) Measurement of Height.

The candidate will be placed against the standard with his feet together, and the weight thrown on the heels and not on the toes or outside of the feet. He will stand erect without rigidity, and with the heels, calves, buttocks, and the shoulders touching the standard; the chin will be depressed to bring the vertex of the head level under the horizontal bar, and and the height will be noted in parts of an inch to eighths.

(*c*) Measurement of Chest.

The candidate will be made to stand erect with his feet together, and to raise his hands above his head. The tape will be carefully adjusted round the chest, with its posterior upper edge touching the inferior angles of the shoulder blades, and its anterior lower edge the upper part of the nipples. The arms will then be lowered to hang loosely by the side, and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The candidate will then be directed to empty his chest of air as much as is possible. This is best done by continuous whistling with the lips as long as sound can be produced. The tape is carefully gathered in during the process, and when the minimum measurement is reached it is recorded.

He will then be directed to inflate his chest to its utmost capacity. This maximum measurement will likewise be recorded. The mean of the two measurements will be considered as the true chest measurement.

(*d*) The regulations regarding the examination of eyesight are as follows :—

Letters and numbers corresponding to Snellen's Optotypi (test types for the determination of the acuteness of vision, 1892 edition) will be used for testing the standard of vision. If a candidate's vision, measured by Snellen's test types, be such that he can read the types numbered D=6 at 6 metres, or 20 English feet, and the types numbered D=0·6 at any distance selected by himself, with each eye separately, and without glasses, he will be considered fit. If a candidate cannot read with each eye separately, without glasses, Snellen's type marked D=36 at a distance of 6 metres or 20 English feet, *i.e.*, if he do not possess one-sixth of Snellen's standard of normal acuteness of vision, although he may be able to read the types D=0·6 at some distance with each eye, he will be considered unfit. If a candidate can read with each eye separately Snellen's types numbered D=36 at a distance of 6 metres or 20 English feet, without glasses, but cannot read them beyond that distance, *i.e.*, if he just possesses one-sixth of normal acuteness of vision, and his visual deficiency is due to faulty refraction, he may be passed as fit, provided that, with the aid of correcting glasses, he can read Snellen's type D=6 at 6 metres or 20 English feet, with one eye, or at least Snellen's types D=12 at 6

metres or 20 English feet, with the other eye; and, at the same time, can read Snellen's type marked D=0·8 with one or both eyes, without the aid of glasses, at any distance the candidate may select.

Squint, inability to distinguish the principal colours, or any morbid conditions, subject to the risk of aggravation or recurrence in either eye, will cause the rejection of a candidate.

IV.—The following additional points will then be observed :—

(*a*) That his hearing is good.
(*b*) That his speech is without impediment.
(*c*) That his teeth are in good order. Loss or decay of ten teeth will be considered a disqualification. Decayed teeth, if well filled, will be considered as sound.
(*d*) That his chest is well formed and that his lungs and heart are sound.
(*e*) That he is not ruptured.
(*f*) That he does not suffer from hydrocele, varicocele, varicose veins in a severe degree, or other disease likely to cause inefficiency. A slight defect, if successfully cured by operation, is not a disqualification.
(*g*) That his limbs are well formed and developed.
(*h*) That there is free and perfect motion of all the joints.
(*i*) That his feet and toes are well formed.
(*j*) That he does not suffer from any inveterate skin disease.
(*k*) That he has no congenital malformation or defect.
(*l*) That he does not bear traces of previous acute or chronic disease pointing to an impaired constitution.

V.—The opinion of the Board regarding a candidate's fitness or unfitness will be final

# Extracts from Foreign Journals.

## ACETANILID (OR ANTIFEBRIN).

F. S. Allen, M.D., D.V.S., Philadelphia, read the following paper before the Pennsylvania State Veterinary Medical Association :—

Acetanilid was first employed in medicine by Cahn and Hepp. It is a white crystalline substance, readily soluble in water; when taken into the mouth it causes a burning sensation, which, however, is very slight. It is almost if not quite tasteless; is, therefore, not disagreeable to take. Dr. Wood describes it as bitter and piquant in taste. Acetanilid has long been known to the chemists, and is made by the action of glacial acetic acid upon anilin. Antifebrin is the name given to this drug by a certain firm who have exclusive control of all manufactured and sold under that name, hence it demands a higher price. In prescription-writing, we should therefore write for acetanilid as a matter of economy, and because it gives equally good results.

Drs. Hare and Wood, of Philadelphia, Pa., have conducted numerous experiments, both physiologically and clinically, with this drug, and it is from their works published I have drawn much of the material for this paper.

*Physiological Action.*—(1) Upon the nervous system it acts as a sedative, quieting the sensory portion of the nerves and spinal cord. In large, poisonous doses it produces anæsthesia, a total loss of reflex action, and motor and sensory paralysis. Dr. Hare claims that the sensory side of the spinal cord and sensory nerves are first affected, and later the motor apparatus, and that the muscles are influenced by the poison only indirectly.

2. On the circulation it has but little effect, unless used in large and poisonous doses. In such cases there is an immediate fall of arterial pressure, with a diminution in the size of pulse wave, and all the evidence of

cardiac and circulatory depression, although death is said to result from respiratory failure. The cause of this fall of blood-pressure is said to be due to the direct depressing action on the heart, associated with the vaso-motor system, as asphyxia causes no rise in pressure. In medicinal doses there may be either an increased or diminished pulse rate. Its action upon the blood in large doses is said to be marked, causing it to become brownish-red in colour, decreasing its ozonizing and oxygen-carrying power, and finally reducing largely the hæmoglobin to methæmoglobin. Its action upon corpuscles is undetermined, some claiming they are disorganized, others that they are not. Dr. Hare claims that in moderately large poisonous doses the drug may not affect the corpuscles, but if continued for some days, or if a very large dose be used at one time, the corpuscular destruction is certain to occur, and the free hæmoglobin appears in the urine, that the normal alkalinity of the blood is lessened, the urine becoming dark in colour.

(3) *Respiration.*—Acetanilid given in small doses is said to have no action upon the respiration, but in large poisonous doses it at once produces a more rapid breathing, which soon becomes laboured. Death is said to result from these large doses, by paralysis of the respiratory centres, and the primary causes are the alteration in the blood, the want of oxygenation of the tissues, and at the same time the depressing action of the drug itself. Baker asserts that the drug also paralyses the peripheral motor nerves.

(4) *Temperature.*—On the temperature Dr. Hare claims that the drug acts, when given in full medicinal doses, to lower the normal temperature, or fails to produce any change. In poisonous doses it produces a decrease in temperature depending on the amount employed, and may produce collapse and rigours. On fevers he claims that it acts as a powerful and fairly constant antipyretic, lowering the fever by decreasing heat production, and increasing heat dissipation, heat production being the function most affected.

*The Kidneys.*—As to its action upon the kidneys there is much dispute, but it is agreed that the excretion of urine is increased, and from excessive doses the urine becomes dark, it is said, from broken-down blood-colouring matter.

Elimination takes place through the kidneys as para-phenolsulphate. As an antiseptic it is slightly so when used freely. I have used it but little, preferring to use others that are better, as iodoform, etc.

Toxic changes from prolonged use are claimed to occur, such as congestion of the liver, kidneys, and spleen, and from poisonous doses it is said clots may be found in the cardiac cavity, and a progressive decrease in the red blood corpuscles.

*Therapeutical Actions.*—In the use of the drug much depends upon the condition of the animal and the disease from which it suffers. Although a powerful antipyretic, in some diseases it has apparently little or no action or influence upon the temperature, the duration, or general course of the disease. In some cases I have known the temperature to continue to rise, when given often and in full doses, and on change of treatment the temperature would fall. This was noticeable in typhoid conditions. Acetanilid, I find in sthenic fevers, is one of our most reliable drugs for reducing the temperature, and it would seem to often shorten their duration. In debilitating or asthenic diseases it has little or no effect on the temperature or general course of the disease. In these diseases, when used, there is great depression and danger of collapse. Good results are claimed from its use in rheumatism, epilepsy, gastralgia, sciatica, etc.

Most of the cases were those of influenza, many of them young and green horses. Acetanilid was used in drachm doses and in combination with the fluid extract of belladonna, tincture nux vomica, tincture cinchona, and alcohol. This mixture was given every three or four hours. In some cases I continued this mixture for six days, where fever so indicated, and I felt it was doing no

harm. At other times it was used only one day, and followed with nitrate of potassium in drinking water. In other cases ammonium chloride, pulv. nux vomica, quinia sulph., etc., were given in bolus. In some cases I found the pulse became soft in character, there was at times great depression and weakness, the number of pulse beats falling below the normal, as was the case in No. 1; there were also others. In other cases the pulse became intermittent. This I noticed mostly in typhoid diseases, in what is called pleuro-pneumonia contagiosa, etc.

I have used acetanilid in drachm doses, every three or four hours for twelve days, and in a few cases even longer, without any bad results.

This drug should be used with care, however, to prevent any accident that might otherwise occur. I can recall two cases, one in my practice and one in my friend's practice. My friend had just left the stable, after giving a very favourable prognosis that the animal would recover, and it was doing nicely, when it dropped dead. In my case the horse was small; the drug had been given, as was my custom, night and day, every three or four hours; the animal was doing well, when last seen, the day before, but the treatment was to continue till the next day. On calling the next morning, to my surprise, I learned the animal had died during the night, and had been removed. In my case I felt that the drug should have been discontinued the night before, and it is possible by so doing the animal would have lived.

I find that there is a tendency to over-stimulation of the kidneys at times, and later to a suppression of the urine; also that these cases, as a rule, terminate fatally.

I have made it a rule, of late, to use acetanilid for twelve to twenty-four hours in all doubtful cases having a high fever, and thus learn if indicated or not.

I believe in full doses, and think it should be given once in four hours, if we wish to obtain the best results. Eisinhart claims that small repeated doses are useless. He says they should be given in large full doses and at one time, and if no fall in temperature occurs, resort to some other treatment.—*American Veterinary Review.*

---

## ENTERALGIA AND GASTRALGIA.

Bryer H. Pendry, D.V.S., Brooklyn, N.Y., writes to the *American Veterinary Review*:—

I was called in to see a medium-sized driving horse, about ten years old, said to be suffering from colic, on January 4th, and received the following history: The horse had been working along as usual with no indication of any trouble until the night previous; fed him that night and next morning; noticed that he was uneasy, getting up and down repeatedly, biting his flanks, foaming and showing signs of general pain, but persistently lying upon the left side. Examination revealed nothing in particular, except evidence of pain upon pressure over the region of the flanks, but was informed that the animal always had been touchy at that point; noticed a marked swelling along the superior cervical vertebra, as if the animal had been hit or had bruised himself, but there was no sensitiveness upon pressure. No elevation of temperature whatsoever. Bowels in perfect order. In fact, frequent and of a nice medium consistency. Pulse very weak and quick. At times the animal was perfectly easy, and then again showing signs of extreme pain.

Put the patient at once under drachm doses of the fluid extract of cannabis indica, with no appreciable benefit. Intermittent improvement only, which continued for one week. All this time the animal was eating very little; in fact, almost nothing.

On the 11th we had a consultation with a neighbouring practitioner, with no very satisfactory result. Course of treatment was now changed to fl. ext. belladonna, in two-drachm doses, for twenty-four hours, and patient showed

marked signs of improvement, as far as controlling the pain, but only while under large doses of the drug.

On the 12th we had a consultation with another veterinarian, and after a most careful examination decided that we had a case of intestinal neuralgia, with recommendation of a continuation of same medicine, but, of course, in smaller, continued doses.

All this time the animal had been eating nothing, and at last tried boiled ground flaxseed, when the animal seemed to start in to take some nourishment, he having gone nearly ten days with hardly anything to eat, and several times during this period the pulse would seem to stand still, and at no time was there the slightest elevation of temperature. The patient went along until the 17th in the same way, at which date the pulse became better and he began to eat a little, and from then on he gradually improved until the 28th, when he was discharged. Once or twice during this time the animal was noticed to stagger, just as if drunk, upon which the belladonna was stopped, with a cessation of mentioned symptom. The drug was only continued when the patient showed signs of recurrent pain, which gradually disappeared altogether. The horse is now as well as ever.

It was one of those cases that, after working for over a week at something you hardly know what, help one to realise how little, at times, we know.

---

### AN UNTOWARD RESULT FROM THE USE OF BARIUM CHLORIDE.

W. P. Stranghan, D.V.S., Stamford, N.Y., writes:—

I have been using chloride of barium as a cathartic—sometimes to my advantage, at other times to my great regret. I have employed one gramme to fifteen of water, and have injected it into the jugular vein. In some cases it produced a great amount of sloughing; in one case it sloughed off the jugular vein, and the patient bled to death.—*American Veterinary Review.*

---

## Notes and News.

On Monday, the 8th March, A. Stagg, of Wick Road, Victoria Park, appeared to a summons, at the instance of the Royal College of Veterinary Surgeons, for assuming a title implying a special qualification in the veterinary art. He pleaded not guilty. Mr. Thatcher prosecuted on behalf of the College, and stated that the defendant was a blacksmith, and had a place of business in Wick Road, Victoria Park, where a signboard was displayed, with the following inscription:—"A. Stagg, veterinary shoeing forge. Henry Shaw, M.R.C.V.S., attends daily." Mr. Thatcher stated that there was a decided case upon the point, which he quoted, from which it appeared that these words would be an infringement of section 17 of the Veterinary Surgeons Act, 1881. The defendant then withdrew his plea of "not guilty," and pleaded "guilty." He said he was a poor man, and had been told he was all right. Mr. D'Eyncourt inquired as to the means of the defendant, and was told by the warrant officer that he was a poor man. Mr. D'Eyncourt then asked Mr. Thatcher if he would be satisfied with a nominal penalty, who, in reply, pointed out that the defendant had not acted in ignorance, as he had received a caution before any proceedings were taken. Mr. D'Eyncourt said the man was poor, and he should only fine him 10s. and costs, but he warned the defendant to alter his board at once, for if he were brought before him again he should inflict a very much more severe penalty.

RAVAGES OF THE RINDERPEST.—The brother of an Edinburgh gentleman, owner of a store in Reitfontein, Mafeking, writing home a few days ago, gives some interesting details in his letters of the effect of the rinderpest on people there. He writes: One transport rider, who did a lot of business with us, made £1,000 in eighteen months; but, like many others, lost it through the rinderpest taking all his oxen. The Colonial Government tried to stem the advance of the plague by stopping all work with oxen, and shooting the cattle affected; but, nevertheless, the sickness gained ground. You will understand it is very difficult to prevent cattle from moving about in a country like this, where the land is all open, and where there are no such spaces as fields. Cattle roam for miles, herded by a boy, and on native "reserves" many thousands have to drink at the same spot; and as we had over thirty head in the midst of a native territory, you will understand how we dreaded the approach of the "enemy." The mortality amongst the native cattle was about 95 per cent. This was because the natives took no steps to doctor the cattle. You would have laughed to see me giving the oxen medicine. First of all, our boys would lasso the ox by its hind leg, and bring it to the ground, and open its mouth, then I would dose it. I managed to bring four round, which, of course, in my case, was equivalent to 14 per cent. Oxen that have recovered from the rinderpest are called "salted," and are worth about £25 or £30 apiece, according to size. The normal price of oxen previously was £5 a head. To show the virulence of the plague, I don't know a man whose cattle have not been destroyed by it. Some who had as many oxen as ourselves lost every one. In place of the herds of fifty or more cattle which we would see every day trooping down to the water to drink, we now see just two or three. No one has a span of oxen left, and consequently the heavy ox-waggons, which are far too weighty for donkeys, will have to rot. The people, also, will not be able to plough; and therefore the ploughs will be rendered useless.

TUBERCULOSIS IN GOATS.—From the following it will be seen that the hitherto accepted theory that goats are immune to tuberculosis is not altogether correct. Bulling (*Indian Medical Record*) records a case of pulmonary tuberculosis in a goat. Both lungs were adherent, and large and small tuberculous foci were present. The author concludes that it would be well to examine into the possibility of the transmission of tuberculosis through the agency of goats, and to consume their milk only after boiling, or after the goat has been shown to be free from tuberculosis by the absence of reaction after the injection of tuberculin.

Mr. BOUGERT, a well known veterinary surgeon at Potsdam, has been examining the equestrian statues at Berlin, and has made the startling discovery that the sculptors have all gone wrong in the position in which they have placed the horses' legs. Not only in the statues, however, but the same is observed in a large number of paintings in the national gallery of that city. The reputation, however, of the older artists, the famous men whose works were attributed to the dawn of the graphic art—the Syrian, the Persian, the Egyptian, etc.—is by no means tarnished with this blemish, for in their work the positions of the legs of the animals represented are all correct. So, too, are, in the majority of cases, the statues made by Greek and Roman artists, although there are exceptions. It would be peculiarly interesting, were Mr. Bougert to come to London and pronounce upon the equestrian statues which decorate portions of the metropolis. The first thing, however, that would have to be done before he could really examine them, would be to put the animals under a thorough course of cleaning with the aid of much water and soap, to say nothing of the scraping off of the accretions of dirt they have gathered by long years of neglect.

# Correspondence.

*To the Editor of* THE VETERINARY JOURNAL.

SIR,—In your editorial on "advertising" you state that the registration committee "have dealt in a most charitable and large-hearted manner with those who have transgressed in any way," and again, you add, "When a member is reported for advertising, or other unprofessional conduct, he is warned, and asked to discontinue what is objected to; if he obeys there is nothing more said." In this you are misinformed, and a serious danger to our individual liberty seems entirely to have escaped you.

I have been a member for now nearly 20 years, and took my diploma at a time when advertising in any and every form, direct, oblique, or vulgar was permitted. Five years ago, when resident in another district, I issued a list of testimonials respecting an operation not usually practised then or now by other veterinary surgeons, and therefore it could not be reported as competitive. Now I have come to live close to an ex-president of the R.C.V.S., a *secret* complaint has been made, one of these lists unearthed, and *without* any such *preliminary notice* as you state I am summoned to appear before the Committee. I observe that the ex-president's forge, as well as a neighbouring house, are covered with large sign-boards (five in number), setting forth his qualifications and calling attention to his Infirmary; and I have in my possession an advertisement of his, in which he claims that his kennels are second to none of their kind in London. His advertisement, like mine, was issued before the new law was "*read into*" the old Act, and I very much doubt the legality of the Council's proceedings. The only test case which you cite was one in which the defendant allowed judgment to go by default, and is, therefore, no test case at all.

In your facts you are wrong, as proved in my case.

That you have overlooked a serious danger I wish to point out, while excusing you on the ground taken in your first editorial, namely, that "an editor need to have all the eyes of Argus if he is to do his duty to the profession." As a student of history, I would ask you: When was the time since human records were first made, that any man, or set of men, were fit to be trusted with secret powers over their rivals? The question can only be answered in one way.

If I were prepared to grant that the members constituting the present registration committee were all as Cæsar's wife (which I am *not*), it would not affect my argument. At any time a Judas Iscariot may be found among the twelve (or is it fifteen?) members.

There is nothing at the present time to prevent a *committee-man from giving secret evidence against his neighbour, and then sitting in judgment upon him*, is there?

As a nation, we have hundreds of years ago fought for the principle of open courts and cross-examination even of common informers, and this narrow, little profession has not discovered "a new heaven and a new earth," but is adopting the principles of the Star Chamber and the Inquisition, swearing away men's professional lives—or liable to do so, it may be more courteous to say.

I am very glad to see the manly and straightforward course taken by one of the candidates for election in objecting to this travesty of justice in which a secret court takes secret evidence and constitutes itself prosecuting counsel, judge, and jury, and issues its ukase without witnesses.

The refusal of the Council to define what is and is not advertising gives the Registration Committee the power to take up the position of "show me

the *man* and I will show you the law," for they are "a law unto themselves, either accusing or else excusing one another," particularly the latter.

If advertising is to be abolished it should begin at the top, with the aristocracy of the profession.

Picking out a poor and obscure member here and there, who cannot afford to fight the Council, can only bring it into contempt with all honest men.

It should be a condition of the Fellowship degree that a man should not advertise or do any of those things which may be considered "disgraceful" by any rival who happens to be on the Council.

Although my voice may be unheeded as that of one crying in the wilderness, the importance of this matter will ere long come home to the "business and bosoms" of the members of the profession.

DIOGENES.

---

N.Y., U.S.A.
*4th March*, 1807.

DEAR SIR,—Permit me to express my hearty approval of the spirit of your editorial in the February VETERINARY JOURNAL regarding veterinary education in America.

While apparently mystified with some of our words you evidently realise quite fully our educational position, and your comments will be read with great pleasure by our most earnest veterinarians, although fortunately your utterances will grate somewhat harshly on others.

Had the report on veterinary education gone deeper it would have revealed the fact that those veterinary colleges requiring the highest standard are gradually and surely making a comparative gain upon the lower grade institutions, as shown by the respective number of students in attendance, a revelation as gratifying to the promoters of higher veterinary education as it is discouraging to those who champion the lower grade.

The great number of American veterinary schools doubtless surprises English veterinarians. The chief explanation for their existence is their heterogeneous requirements, aims and destinies.

We are undergoing a critical period in development and the history of veterinary science in America is being rapidly written.

A few years ago we were undergoing evolution, now we are in the midst of a revolution. Some veterinary colleges have fulfilled their aims or ignominiously failed and have become matters of history; others have practically completed their mission and must soon cease to exist, while some finding their aims accomplished, see other useful work to do, and have changed their course and are striving to meet the present demands of the profession, while newer schools are entering the field under the belief that they can, under different environments, more readily render the service demanded by our present needs.

In this country the affiliation of all veterinary schools with uniformity of requirements for entrance and graduation and uniformity of laws for license to practise in the various states, is neither readily attainable nor highly essential.

In their relations with each other it is well for the colleges to know what each is doing, and consequently be able to arrive at the value of a given amount of work accomplished in this or that school.

In most states, however, there are no veterinary practice laws, so that any one, be he a graduate of a veterinary school or not, can enter into practice under any title he may elect, while in a few of our states candidates for license to practice must meet certain requirements established by state laws, usually on examination before a state veterinary examining board. In fact, whether aware of it or not, we have largely copied the present veterinary laws of

England, our state veterinary board, being our Royal College of Veterinary Surgeons, which prescribes and carries out the examinations.

These laws are new, and practically untried. If they are found to mark a hardship to veterinarians desiring to move from one state to another they will surely be changed, but those states which have set the highest standards can certainly not consent to lower them to meet the views of those states having very lax laws, or, as is usually the case, no laws whatever, while veterinarians having fulfilled the requirements in those states with the most strict laws will not be barred, nor greatly annoyed, should they wish to remove to those holding lower or no requirements.

Beneath this apparent chaos there is an inexhaustible strength in the veterinary profession of America, which is inevitably and rapidly bringing it to its proper level.

The United States Veterinary Medical Association is exerting an increasingly powerful influence in advancing our profession, while the affiliated Association of Veterinary Faculties of North America has already accomplished much, although only recently organized, and now it is equipped to carry its work forward with far greater zeal and effect, and to these, editorials of the character of yours render a valued service well worthy of hearty applause.—Sincerely yours,

SCRUTATOR.

PROF. W. WILLIAMS, Edinburgh.

---

# Reviews.

THE POINTS OF THE HORSE. By CAPTAIN M. H. HAYES, F.R.C.S.

This is a book that all members in the profession should have, for it contains facts which are well proved and which are of the greatest value to the veterinarian. We are sorry to say that a number of us, though profoundly scientific, don't exactly know how horses should place their feet when galloping, trotting, or walking. Captain Hayes' book is just the one that should be read for the purpose of learning the correct action of the horse.

The author is the only one who has thoroughly gone into the subject. His knowledge, which has been attained by going almost everywhere where horses of every breed and class were to be seen, is one of the greatest value.

The book is profusely illustrated with photographs taken chiefly by Captain and Mrs. Hayes, and which are lessons in themselves, and should be carefully examined by the reader.

---

# Obituary.

| | |
|---|---|
| Dudgeon, David, Sunderland .. .. .. .. | April, 1865 |
| Roberts, Robert, Wrexham .. .. .. .. | Dec., 1866 |

---

## Communications, Books, Journals, etc., Received.

Second Report on the Departmental Committee appointed by the Board of Agriculture to inquire into the Etiology, Pathology, and Morbid Anatomy of the Diseases classed as Swine Fever; American Veterinary Review; Journal of Comparative Medicine; Australian Farm and Home; Results of Use of Tuberculin, by James Wilson, M.A.; Bacteriological Diagnosis, by St. John Reid; Country Life Illustrated; Recueil de Médecine Vétérinaire (Alfort); La Presse Vétérinaire (Paris); L'Echo Vétérinaire (Liége); Annales de Médecine Vétérinaire (Brussels); Berliner Thierärztliche Wochenschrift (Berlin); La Clinica Veterinaria (Milan); Il Nuovo Ercolani (Pisa); La Revista Veterinaria (Buenos Aires); Deutsche Thierärztliche Wochenschrift (Hannover und Karlsruhe).